ORDER NO. MAC9810034C2

Service Manual

Room Air Conditioners

CS-C73KE / CU-C73KE
CS-C93KE / CU-C93KE
CS-C123KE / CU-C123KE

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Panasonic

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

⚠ PRECAUTION OF LOW TEMPERATURE

In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigeration circuit.

Features

- **High Efficiency**
- **Compact Design**
- **Comfort Enviroment**
  – 8 hours of sleep mode operation
  – Air purifying filter with deodorizing function to reduce dust, smoke and odours.
- **Auto Restart**
  – Auto restart at random operation after power failure
- **Removable and Washable Front Panel**
- **Quality Improvement**
  – Gas leakage protection
  – Prevent compressor reverse cycle
  – 2-stage OLP to protect compressor
- **Service Improvement**
  – Easy fan motor replacement procedure
- **Operation Improvement**
  – Economy mode to reduce electrical power consumption.
  – Powerful mode to reaches the desired room temperature quickly.
- **Long Installation Piping**
  – CS/CU–C73KE, CS/CU–C93KE, long piping up to 10 meter.
  – CS/CU–C123KE, long piping up to 15 meter.

Functions

Remote Control

OFF / ON ⏻

Operation OFF / ON

MODE

Operation Mode Selection

- AUTO Automatic Operation Mode
- COOL Cooling Operation Mode
- DRY Soft Dry Operation Mode
- FAN Air Circulation Mode

FAN SPEED

Indoor Fan Speed Selection

- Low Speed
- Medium Speed
- High Speed
- AUTOFAN Automatic Fan Speed

AIR SWING

Airflow Direction Control

- AUTO Automatic Airflow Direction Control
- MANUAL Airflow Direction Manual Control

POWERFUL

Powerful Mode Operation OFF/ON

ECONOMY

Economy Mode Operation OFF/ON

TEMP.

Room Temperature Setting

- Temperature Setting (16°C to 30°C)
- Automatic Operation
  - ▲ HI AUTO 2°C higher than standard
  - AUTO Standard
  - AUTO ▼ Lo 2°C lower than standard

ON-TIMER
OFF-TIMER

Timer Operation Selection

- 24-hour, OFF / ON Real Timer Setting.

TIMER

Time / Timer Setting

- Hours and minutes setting.

SET
CANCEL

Timer Operation Set / Cancel

- ON Timer and OFF Timer setting and cancellation.

CLOCK

Clock Setting

- Current time setting.

SLEEP

Sleep Mode Operation OFF / ON

Functions

Indoor Unit

POWER ⏻

Power Switch OFF / ON

AUTO OFF / ON

Auto Operation Button

- Used when the remote control cannot be used.

Remote Control Signal Receiving Sound

- It can be controlled by pressing Auto Operation Button for 10 seconds.

TEST RUN OFF / ON

Operation Test Running / Pump Down Switch

- Used when test running or servicing.

Operation Indication Lamps (LED)

- POWER (Red)..... Lights up in operation, blinks in Automatic Operation Mode judging
- SLEEP (Orange)..... Lights up in Sleep Mode Operation
- TIMER (Orange)..... Lights up in Timer Setting
- POWERFUL (Orange)..... Lights up in Powerful Mode Operation
- ECONOMY (Green)..... Lights up in Economy Mode Operation

Operation Mode

- Cooling, Soft Dry, Air Circulation and Automatic Mode.

Powerful Operation

- Reaches the desired room temperature quickly.

Economy Operation

- To reduce electrical power consumption.

Random Auto Restart Control

- Operation is restarted randomly after power failure at previous setting mode.

Anti-Freezing Control

- Anti-Freezing control for indoor heat exchanger. (Cooling and Soft Dry)

Sleep Mode Auto Control

- Indoor Fan operates at low speed.
- Operation stops after 8 hours.

Indoor Fan Speed Control

- High, Medium and Low.
- Automatic Fan Speed Mode
  - Cooling : Fan rotates at Hi and Me speed. Deodorizing control is available.
  - Soft Dry : Fan rotates at SLo and Lo speed. Deodorizing control is available.

Airflow Direction Control

- Automatic air swing and manual adjusted by remote control for vertical airflow.
- Manually adjusted by hand for horizontal airflow.

Starting Current Control

Time Delay Safety Control

- Restarting is inhibited for appro. 3 minutes.

7 Minutes Time Save Control

- Cooling Operation only.

Functions

Outdoor Unit

CU-C73KE, CU-C93KE

CU-C123KE

Compressor Reverse Rotation Protection Control

- To protect compressor from reverse rotation when there is a instantaneous power failure.

Overload Protector

- 2-Stage OLP to protect the compressor. Overload Protector will trip when
  - Temperature of compressor increases to 120°C.
  - High temperature or high current flows to compressor. (Refer circuit diagram for OLP characteristic)

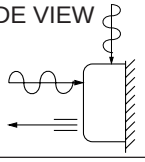
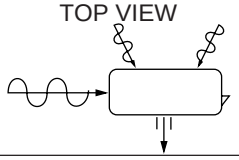
60 Secs. Forced Operation Control

- Once the compressor is activated, it does not stop within the first 60 secs. However, it stops immediately with remote control stop signal.

Outdoor Fan Operation Control

- Inner protector.

Product Specifications

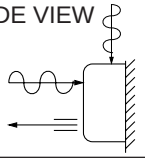
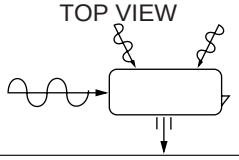
			Unit	CS-C73KE	CU-C73KE
Cooling Capacity			kW Btu/h	2.05 - 2.00 7,000 - 6,830	
Moisture Removal			ℓ/h Pint/h	1.3 2.7	
Power Source			Phase V Cycle	Single 230 - 220 50	
Airflow Method			OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air Volume	Indoor Air (Lo)		m^3/min (cfm)	5.5 (190)	–
	Indoor Air (Me)		m^3/min (cfm)	6.3 (220)	–
	Indoor Air (Hi)		m^3/min (cfm)	7.0 (250)	–
	Outdoor Air		m^3/min (cfm)	–	22.2 (780)
Noise Level			dB (A)	High 33 - 32, Low 28 - 26	High 46 - 45
Electrical Data	Input		W	600 - 550	
	Running Current		A	2.8 - 2.7	
	COP		W/W	3.42 - 3.64	
	Starting Current		A	12	
Piping Connection Port (Flare piping)			inch inch	G ; Half Union 3/8" L ; Half Union 1/4"	G ; 3-way valve 3/8" L ; 2-way valve 1/4"
Pipe Size (Flare piping)			inch inch	G (gas side) ; 3/8" L (liquid side) ; 1/4"	G (gas side) ; 3/8" L (liquid side) ; 1/4"
Drain Hose	Inner diameter		mm	12	–
	Length		m	0.7	–
Power Cord Length Number of core-wire			m	2.0 3 (1.0 mm^2)	– –
Dimensions		Height	inch (mm)	10-31/32 (279)	18-29/32 (480)
		Width	inch (mm)	31-15/32 (799)	30-23/32 (780)
		Depth	inch (mm)	7-15/32 (190)	9-21/32 (245)
Net Weight			lb (kg)	20 (9.0)	57 (26)
Compressor		Type		–	Rotary (1 cylinder) rolling piston type
	Motor	Type		–	Induction (2-poles)
	Rated	Output	W	–	500
Air Circulation		Type		Cross-flow Fan	Propeller Fan
		Material		AS + Glass Fiber 30%	AES + Glass Fiber 16%
	Motor	Type		Induction (4-poles)	Induction (6-poles)
		Input	W	29.0 - 27.0	54.7 - 47.9
		Rated Output	W	10	20
	Fan Speed	Low	rpm	835	–
		Medium	rpm	945	–
		High	rpm	1,055	685

Product Specifications

		Unit	CS-C73KE	CU-C73KE
Heat Exchanger	Description		Evaporator	Condenser
	Tube material		Copper	Copper
	Fin material		Aluminium	Aluminium
	Fin Type		Slit Fin	Louver Fin
	Row / Stage		(Plate fin configuration, forced draft) 2 × 14	1 × 18
	FPI		21	17
	Size (W × H × L)	mm	614 × 294 × 25.4	856 × 457.2 × 22
Refrigerant Control Device			–	Capillary Tube
Refrigeration Oil		(c.c)	–	SUNISO 4GDID or ATMOS M60 (260)
Refrigerant (R-22)		g (oz)	–	645 (22.8)
Thermostat			Electronic Control	–
Protection Device			–	2 Stage Overload Protector
Capillary Tube	Length Flow Rate Inner Diameter	mm ℓ/min mm	– – –	450 7.9 1.2
Air Filter	Material Style		P.P. Honeycomb	–
Capacity Control			Capillary Tube	
Compressor Capacitor		μF, VAC	–	20 μF, 370VAC
Fan Motor Capacitor		μF, VAC	1.5 μF, 400VAC	1.2 μF, 400VAC

• Specifications are subject to change without notice for further improvement.

Product Specifications

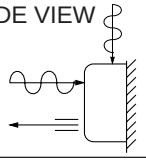
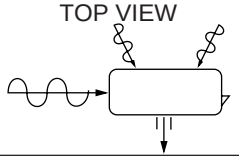
			Unit	CS-C93KE	CU-C93KE
Cooling Capacity			kW Btu/h	2.75 - 2.65 9,390 - 9,050	
Moisture Removal			ℓ/h Pint/h	1.6 3.4	
Power Source			Phase V Cycle	Single 230 - 220 50	
Airflow Method			OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air Volume	Indoor Air (Lo)		m^3/min (cfm)	6.8 (240)	–
	Indoor Air (Me)		m^3/min (cfm)	7.3 (260)	–
	Indoor Air (Hi)		m^3/min (cfm)	8.7 (310)	–
	Outdoor Air		m^3/min (cfm)	–	22.2 (780)
Noise Level			dB (A)	High 37 - 36, Low 30 - 28	High 47 - 46
Electrical Data	Input		W	800 - 770	
	Running Current		A	3.5 - 3.6	
	COP		W/W	3.44 - 3.44	
	Starting Current		A	16.4	
Piping Connection Port (Flare piping)			inch inch	G ; Half Union 3/8" L ; Half Union 1/4"	G ; 3-way valve 3/8" L ; 2-way valve 1/4"
Pipe Size (Flare piping)			inch inch	G (gas side) ; 3/8" L (liquid side) ; 1/4"	G (gas side) ; 3/8" L (liquid side) ; 1/4"
Drain Hose	Inner diameter		mm	12	–
	Length		m	0.7	–
Power Cord Length Number of core-wire			m	2.0 3 (1.0 mm^2)	– –
Dimensions		Height	inch (mm)	10-31/32 (279)	18-29/32 (480)
		Width	inch (mm)	31-15/32 (799)	30-23/32 (780)
		Depth	inch (mm)	7-15/32 (190)	9-21/32 (245)
Net Weight			lb (kg)	20 (9.0)	64 (29.0)
Compressor		Type		–	Rotary (1 cylinder) rolling piston type
	Motor	Type		–	Induction (2-poles)
	Rated	Output	W	–	700
Air Circulation		Type		Cross-flow Fan	Propeller Fan
		Material		AS + Glass Fiber 30%	AES + Glass Fiber 16%
	Motor	Type		Induction (4-poles)	Induction (6-poles)
		Input	W	35.5 - 33.0	54.7 - 47.9
		Rated Output	W	15	20
	Fan Speed	Low	rpm	925	–
		Medium	rpm	995	–
		High	rpm	1,185	685

Product Specifications

		Unit	CS-C93KE	CU-C93KE
Heat Exchanger	Description		Evaporator	Condenser
	Tube material		Copper	Copper
	Fin material		Aluminium	Aluminium
	Fin Type		Slit Fin	Louver Fin
	Row / Stage		(Plate fin configuration, forced draft) 2 × 14	1 × 18
	FPI		21	17
	Size (W × H × L)	mm	614 × 294 × 25.4	856 × 457.2 × 22
Refrigerant Control Device			–	Capillary Tube
Refrigeration Oil		(c.c)	–	SUNISO 4GDID or ATMOS M60 (320)
Refrigerant (R-22)		g (oz)	–	760 (26.8)
Thermostat			Electronic Control	–
Protection Device			–	2-Stage Overload Protector
Capillary Tube	Length Flow Rate Inner Diameter	mm ℓ/min mm	– – –	1,040 9.0 1.5
Air Filter	Material Style		P.P. Honeycomb	–
Capacity Control			Capillary Tube	
Compressor Capacitor		μF, VAC	–	30 μF, 370VAC
Fan Motor Capacitor		μF, VAC	1.5 μF, 400VAC	1.2 μF, 400VAC

• Specifications are subject to change without notice for further improvement.

Product Specifications

			Unit	CS-C123KE	CU-C123KE
Cooling Capacity			kW Btu/h	3.65 - 3.52 12,500 - 12,000	
Moisture Removal			ℓ/h Pint/h	2.1 4.4	
Power Source			Phase V Cycle	Single 230 - 220 50	
Airflow Method			OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air Volume	Indoor Air (Lo)		m^3/min (cfm)	7.4 (260)	–
	Indoor Air (Me)		m^3/min (cfm)	8.0 (280)	–
	Indoor Air (Hi)		m^3/min (cfm)	9.0 (290)	–
	Outdoor Air		m^3/min (cfm)	–	32.2 (1130)
Noise Level			dB (A)	High 39 - 39, Low 34 - 33	High 49 - 48
Electrical Data	Input		W	1,190 - 1,150	
	Running Current		A	5.3 - 5.4	
	COP		W/W	3.07 - 3.06	
	Starting Current		A	26	
Piping Connection Port (Flare piping)			inch inch	G ; Half Union 1/2" L ; Half Union 1/4"	G ; 3-way valve 1/2" L ; 2-way valve 1/4"
Pipe Size (Flare piping)			inch inch	G (gas side) ; 1/2" L (liquid side) ; 1/4"	G (gas side) ; 1/2" L (liquid side) ; 1/4"
Drain Hose	Inner diameter		mm	12	–
	Length		m	0.7	–
Power Cord Length Number of core-wire			m	2.0 3 (1.0 mm^2)	– –
Dimensions		Height	inch (mm)	10-31/32 (279)	21-1/4 (540)
		Width	inch (mm)	31-15/32 (799)	27-17/32 (699)
		Depth	inch (mm)	7-15/32 (190)	11-7/32 (285)
Net Weight			lb (kg)	20 (9.0)	82 (37)
Compressor		Type		–	Rotary (1 cylinder) rolling piston type
	Motor	Type		–	Induction (2-poles)
	Rated	Output	W	–	1,100
Air Circulation		Type		Cross-flow Fan	Propeller Fan
		Material		AS + Glass Fiber 30%	AES + Glass Fiber 16%
	Motor	Type		Induction (4-poles)	Induction (6-poles)
		Input	W	35.5 - 33.0	72.0 - 68.0
		Rated Output	W	15	25
	Fan Speed	Low	rpm	1,060	–
		Medium	rpm	1,145	–
		High	rpm	1,280	785

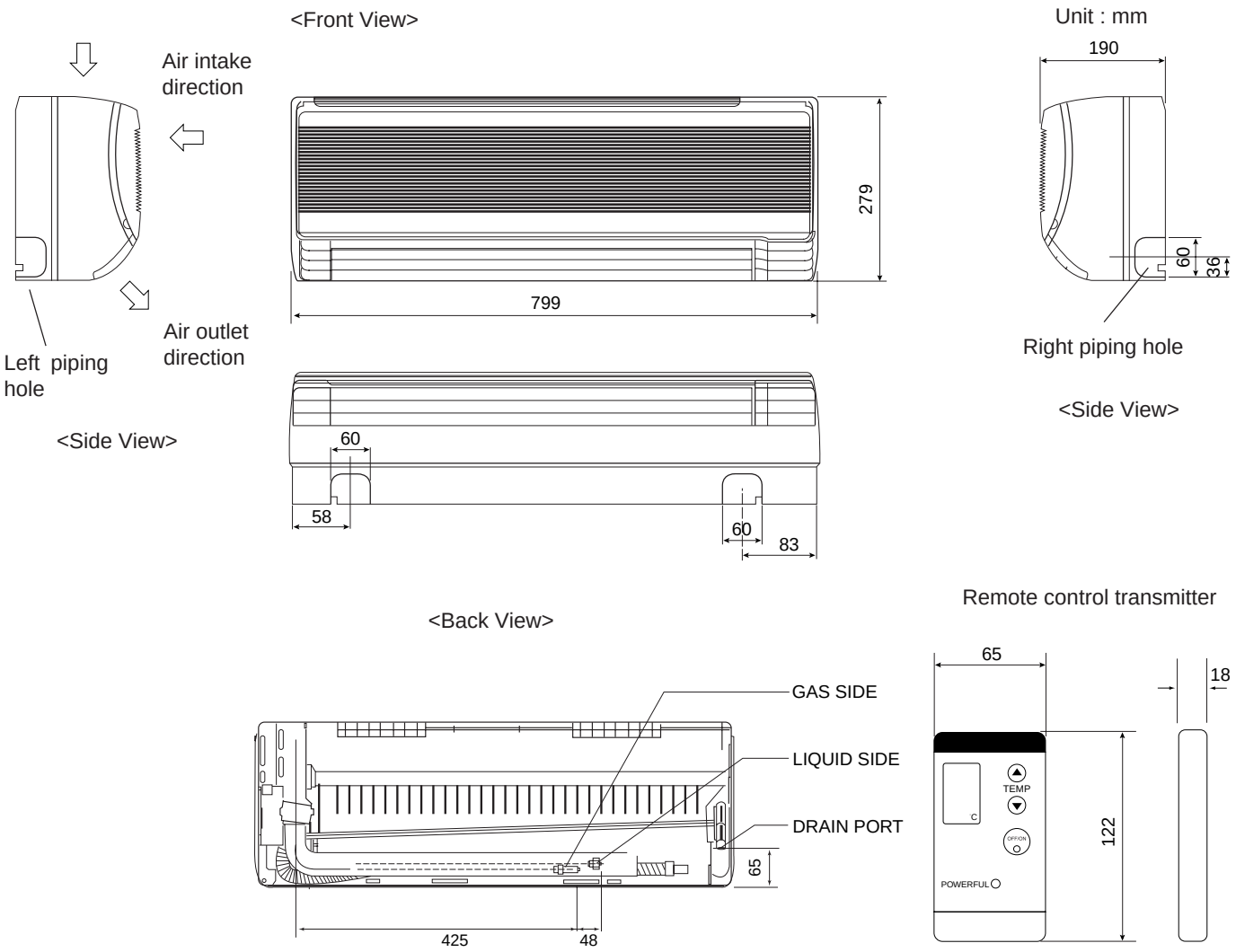
Product Specifications

		Unit	CS-C123KE	CU-C123KE
Heat Exchanger	Description		Evaporator	Condenser
	Tube material		Copper	Copper
	Fin material		Aluminium	Aluminium
	Fin Type		Slit Fin	Louver Fin
	Row / Stage		(Plate fin configuration, forced draft) 2 × 14	1 × 20
	FPI		21	18
	Size (W × H × L)	mm	614 × 294 × 25.4	782.9 × 508 × 22
Refrigerant Control Device			–	Capillary Tube
Refrigeration Oil		(c.c)	–	SUNISO 4GDID or ATMOS M60 (410)
Refrigerant (R-22)		g (oz)	–	815 (28.8)
Thermostat			Electronic Control	–
Protection Device			–	2-Stage Overload Protector
Capillary Tube	Length Flow Rate Inner Diameter	mm ℓ/min mm	– – –	535 17.0 1.7
Air Filter	Material Style		P.P. Honeycomb	–
Capacity Control			Capillary Tube	
Compressor Capacitor		μF, VAC	–	30 μF, 370VAC
Fan Motor Capacitor		μF, VAC	1.5 μF, 400VAC	1.5 μF, 400VAC

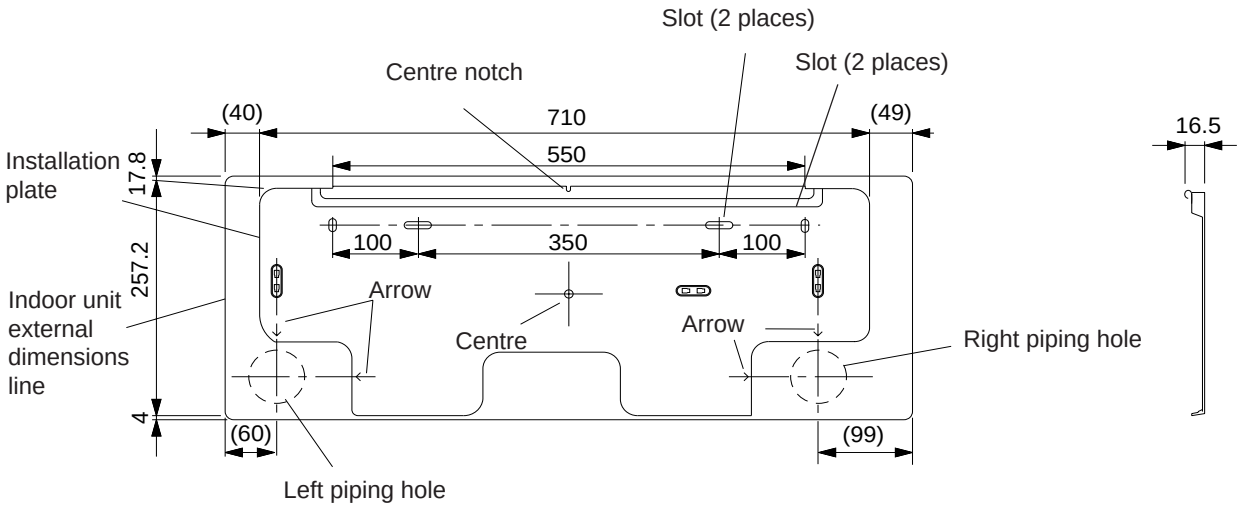
• Specifications are subject to change without notice for further improvement.

Dimensions

CS-C73KE / CS-C93KE / CS-C123KE

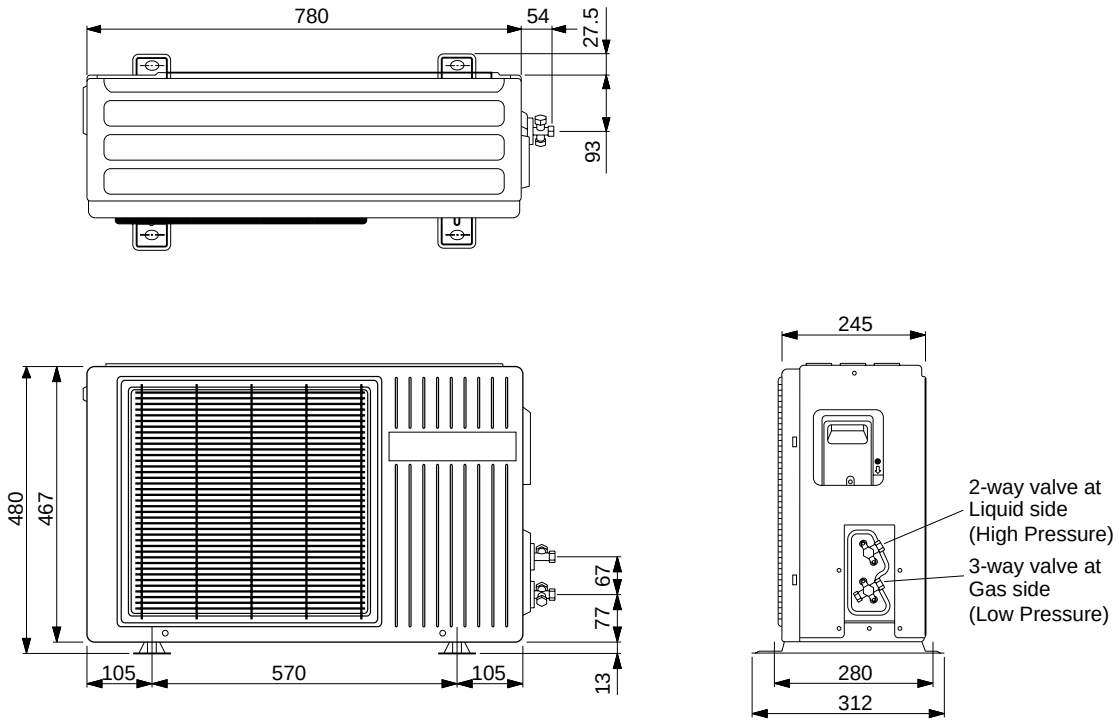


Relative position between the indoor unit and the installation plate <Front View>

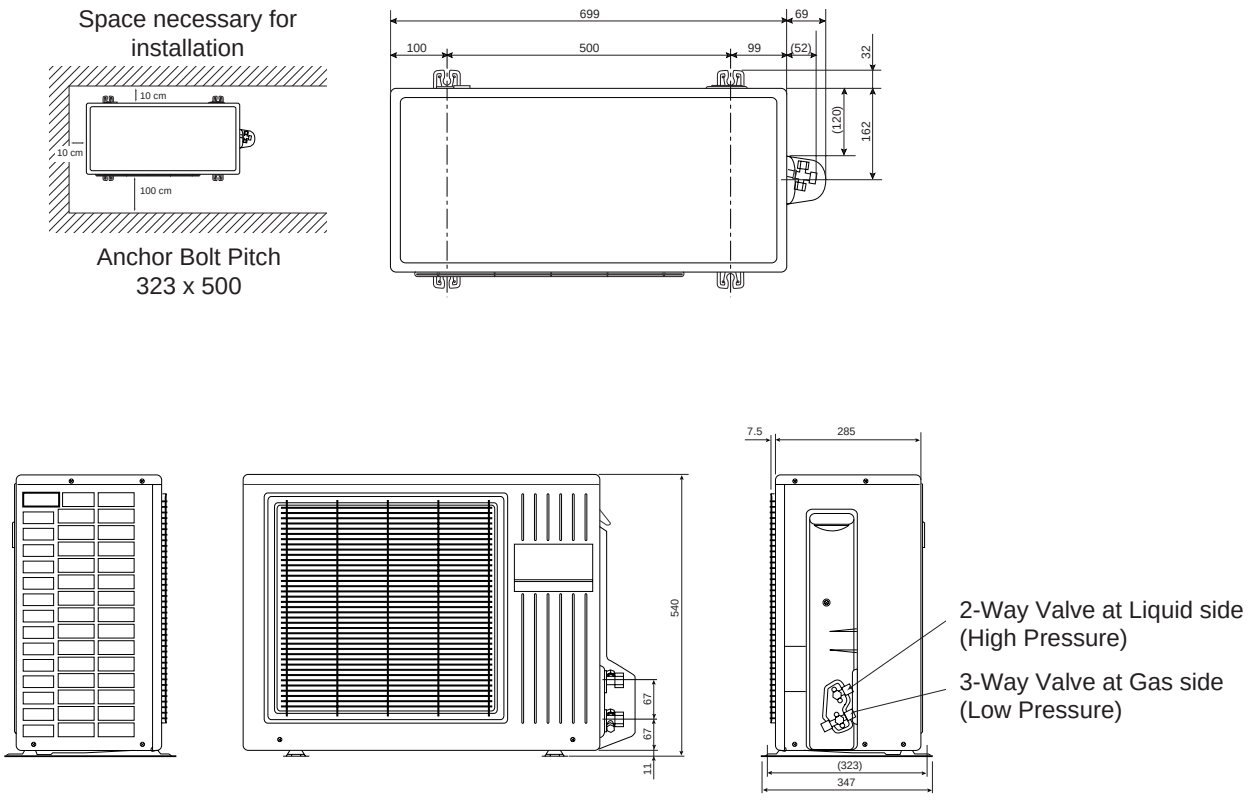


Dimensions

CU-C73KE / CU-C93KE

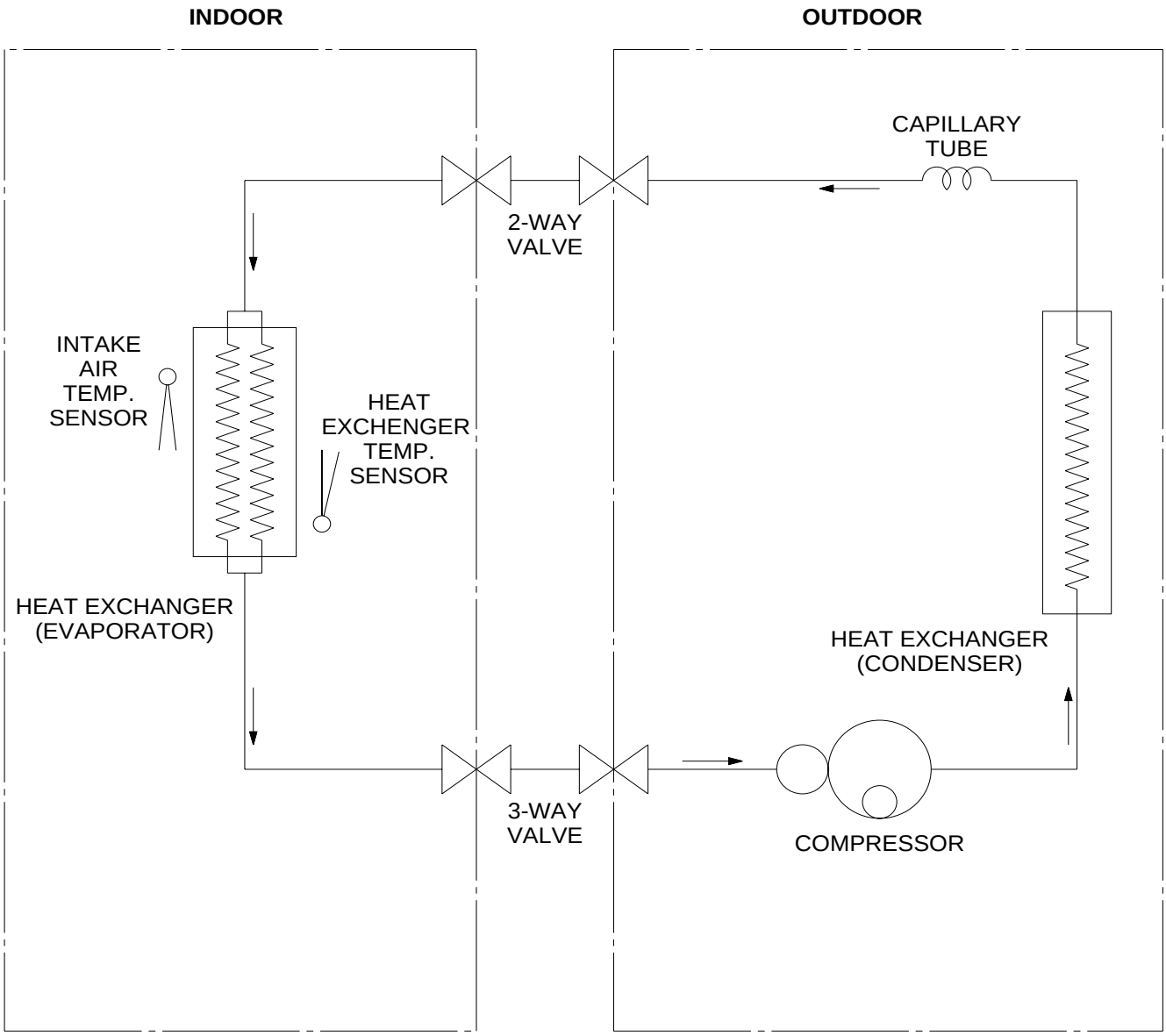


CU-C123KE



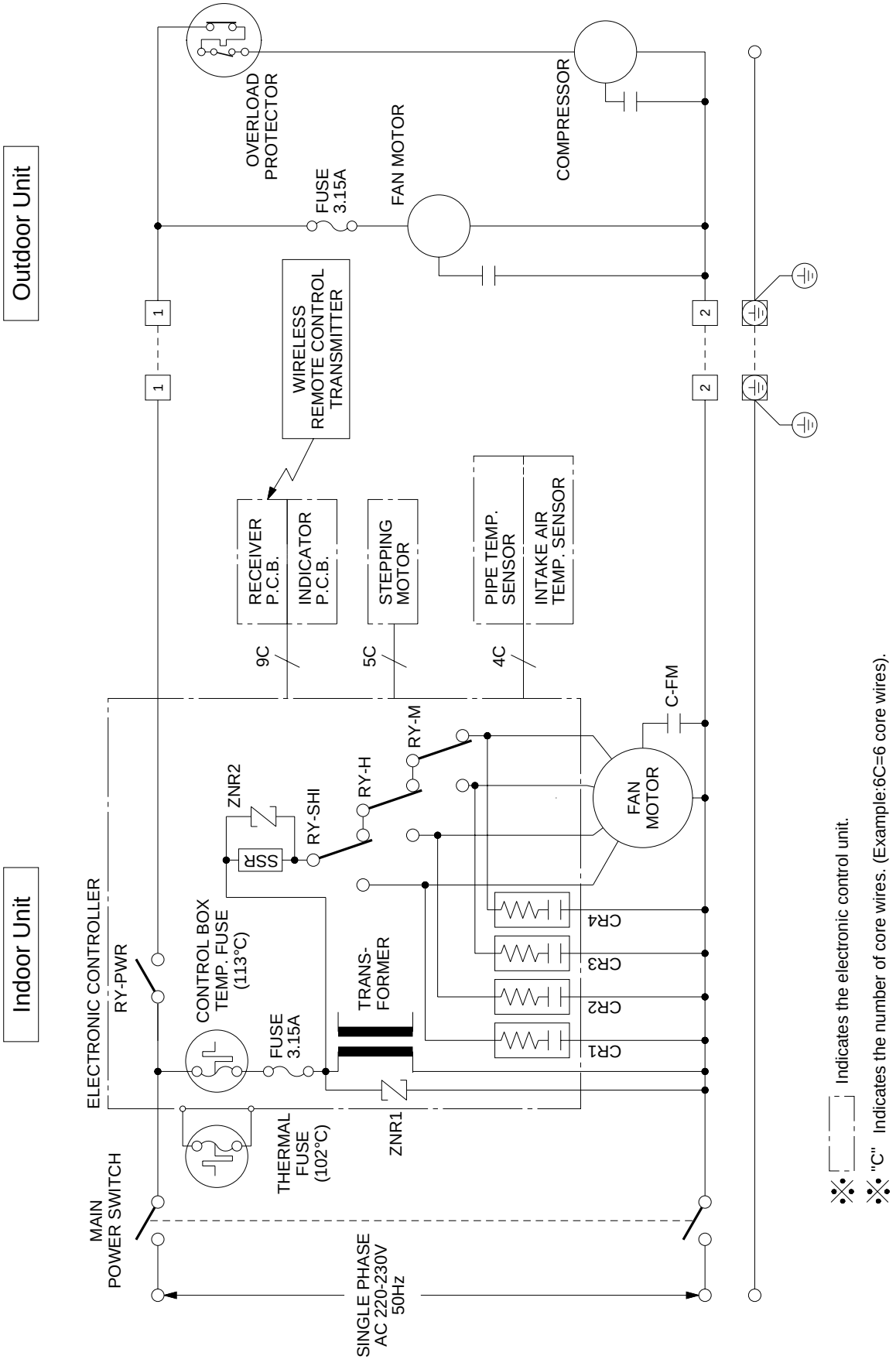
Refrigeration Cycle Diagram

CS-C73KE / CU-C73KE
CS-C93KE / CU-C93KE
CS-C123KE / CU-C123KE



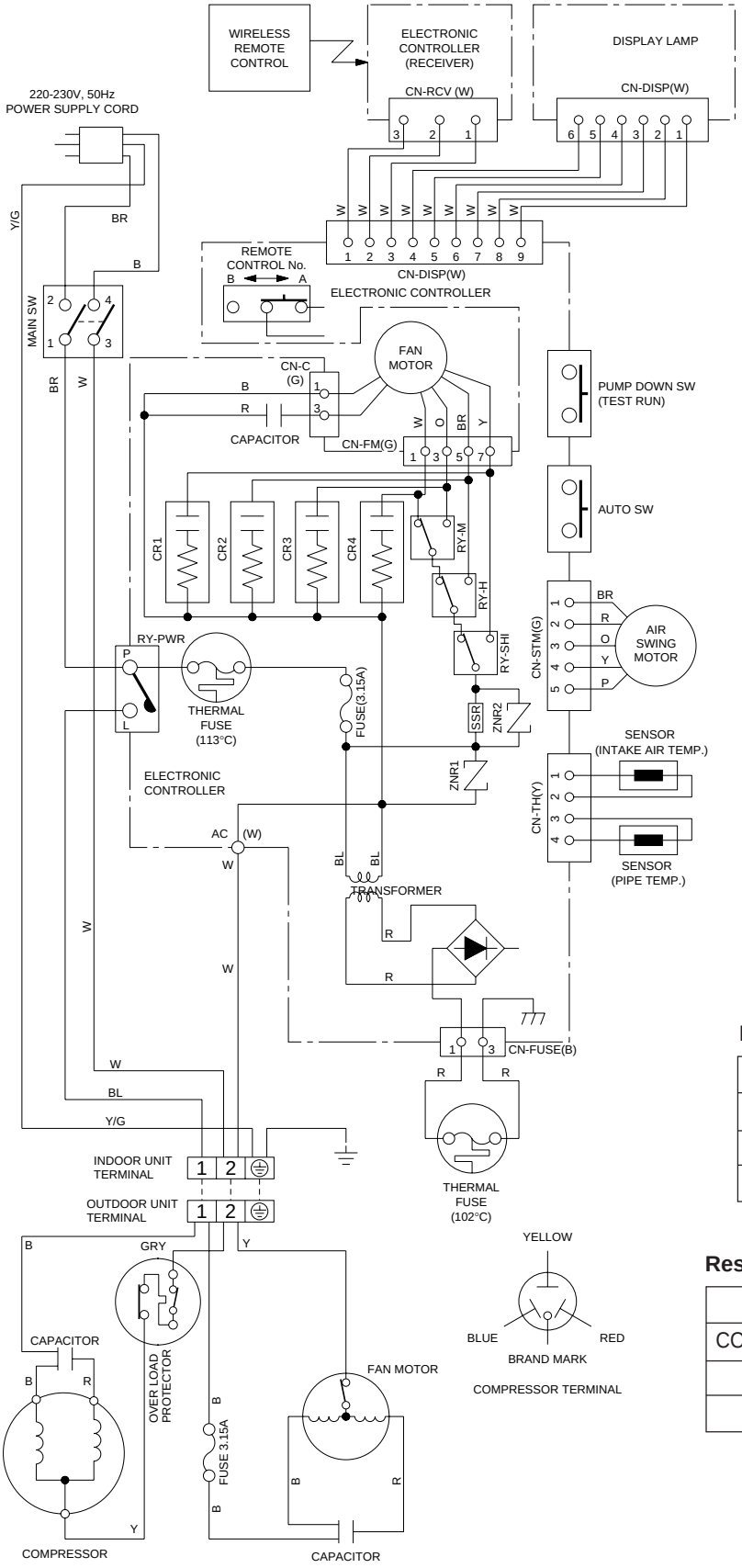
Block Diagram

CS-C73KE / CU-C73KE
CS-C93KE / CU-C93KE
CS-C123KE / CU-C123KE



Wiring Diagram

CS-C73KE / CU-C73KE
CS-C93KE / CU-C93KE
CS-C123KE / CU-C123KE



REMARKS:

B	:	BLUE
BR	:	BROWN
BL	:	BLACK
W	:	WHITE
R	:	RED
O	:	ORANGE
P	:	PINK
Y/G	:	YELLOW/ GREEN

Resistance of Indoor Fan Motor Windings

MODEL	CS-C73KE	CS-C93KE	CS-C123KE
CONNECTION	CWA92288	CWA92289	CWA92290
YELLOW-BLUE	536.5	449.5	457.4
YELLOW-BROWN	77.1	87.7	56.1
BROWN-ORANGE	43.9	56.1	61.2
ORANGE-WHITE	42.7	18.6	25.3
WHITE-RED	111.4	124.1	142.5

Resistance of Outdoor Fan Motor Windings

MODEL	CU-C73KE	CU-C93KE	CU-C123KE
CONNECTION	CWA95238	←	CWA95378
BLUE-YELLOW	310.0 Ω	←	174.5 Ω
YELLOW-RED	409.8 Ω	←	331.0 Ω

Resistance of Compressor Windings

MODEL	CU-C73KE	CU-C93KE	CU-C123KE
CONNECTION	2RS110D5CA04	2PS146D5BA04	2KS224D5CA02
C-R	5.382 Ω	3.941 Ω	2.211 Ω
C-S	5.328 Ω	3.499 Ω	2.924 Ω

Operation Details

1) Cooling Mode Operation

Cooling in operation according to Remote Control setting.

Time Delay Safety Control (3 minutes)

- When the compressor is stopped by Power Switch or Remote Control, it restarts after 3 minutes when the Power Switch or Remote Control is turned ON.
- When the setting temperature is reached during cooling operation, the compressor stops and it will not start for 3 minutes.

7 minutes Time Saved Control

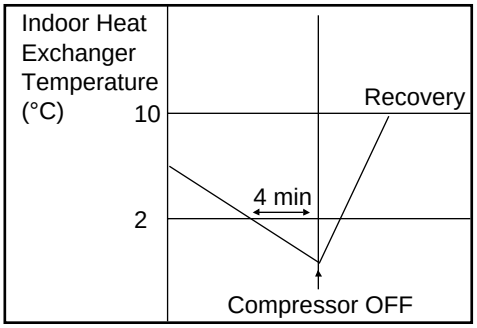
- The compressor will start automatically if it has stopped for 7 minutes even if the room temperature is below the compressor ON temperature.

Starting Current Control

- When the compressor, outdoor fan motor & indoor fan motor are simultaneously started, the indoor fan motor will operate 1.6 second later.

Anti-Freezing Control

- If the temperature of the indoor heat exchanger falls continously below 2°C for 4 minutes or more, the compressor turns off to protect the indoor heat exchanger from freezing. The fan speed setting remains the same.
- Compressor recommences when the indoor heat exchanger temperature rises to 10°C (Recovery).
  ※ 3 minutes waiting of Time Delay Safety Control is valid for Cooling Operation.



Compressor Reverse Rotation Protection Control

- If the compressor is operating continuously for 5 minutes or longer and the temperature difference between intake air and indoor heat exchanger is 2.5˚C or less for 2 minutes, compressor will stop and restart automatically. (Time Delay Safety Control is valid).

• Compressor starts for ⩾ 5 minutes • Δ T ⩽ 2.5˚C for 2 minutes	➡	Compressor OFF	➡	Compressor restarts (3 minutes waiting)

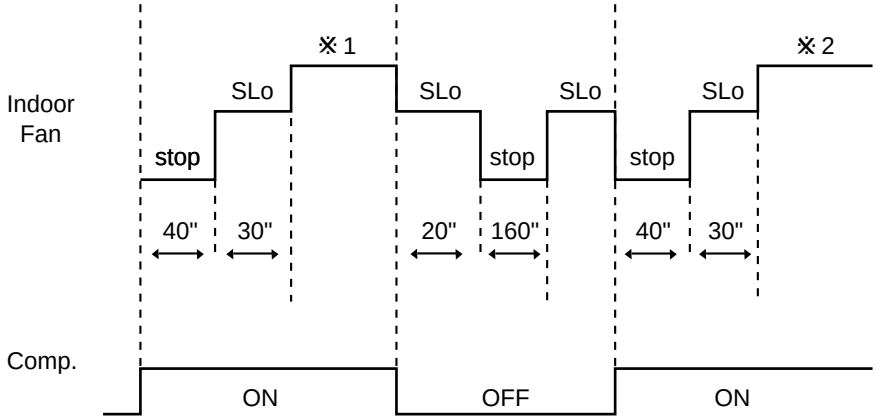
Δ T = Intake air temperature – Indoor heat exchanger temperature
This is to protect reverse rotation of the compressor when there is a instantaneous power failure.

Operation Details

Automatic Fan Speed Mode

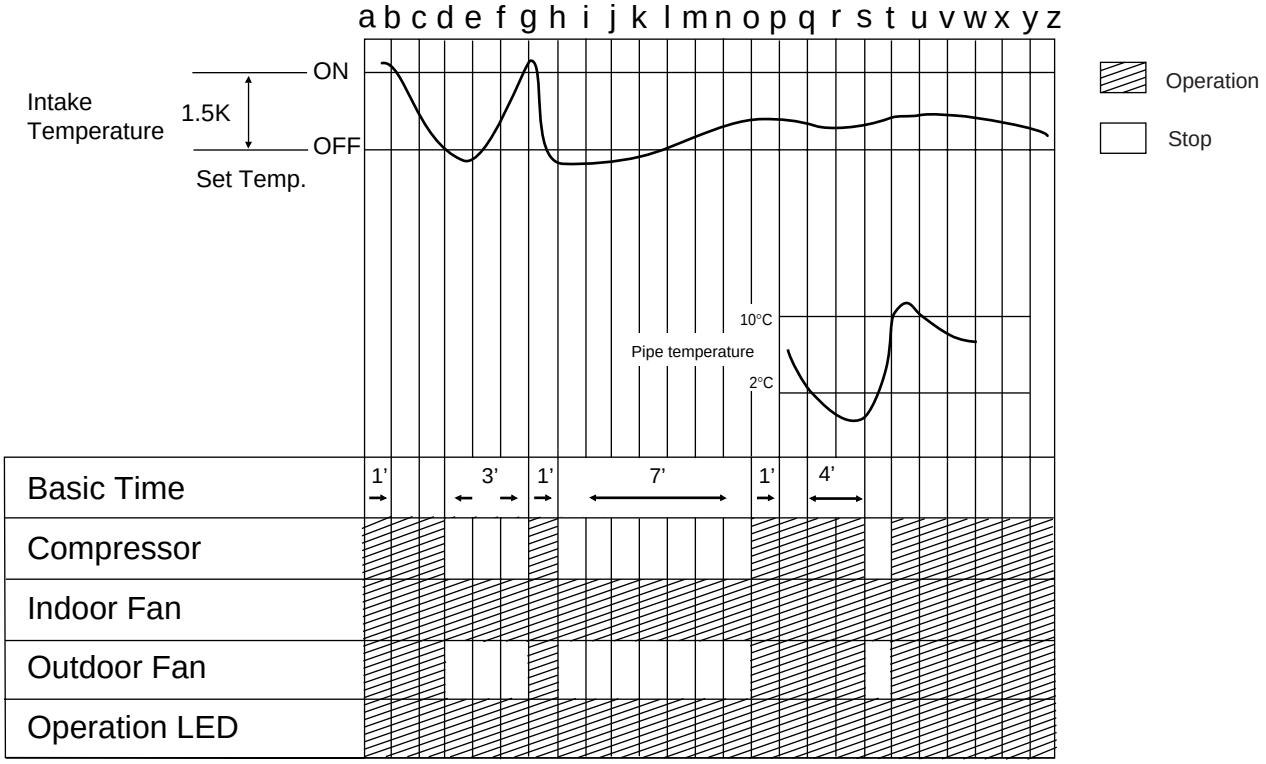
When Automatic Fan Speed is selected at Remote Control during cooling operation.

- Fan speed rotates in the range of Hi to Me.
- Deodorizing Control.



※1 Fan Speed is Hi until the compressor stops (when the room temperature reaches setting temperature).
※2 Fan Speed is Me after the compressor restarts.
※SLo: Indoor Fan rotates at 4 second intervals at low speed.

Cooling Operation Time Diagram



<Description of operation>

d – g : Time Delay Safety Control (waiting for 3 minutes)
g – h : 60 sec. Forced Operation
h – o : 7 min. Time Saved Control
q – t : Anti Freezing Control

Operation Details

2) Soft Dry Mode Operation

- The unit starts cooling operation until the room temperature reaches the setting temperature set on the Remote Control, and then Soft Dry operation will start.
- During Soft Dry operation, the Indoor Fan will operate and stop at 4-second intervals at low speed.
- The operation will be switched on and off for up to 10 minutes “ON” and 6 minutes “OFF”. Once Soft Dry operation is turned off, it stops for 6 minutes.

Time Delay Safety Control

- Once the compressor stops, it will not start for 3 minutes during Cooling operation.

Starting Current Control

- Same as Starting Current Control for Cooling Mode operation.

Anti-Freezing Control

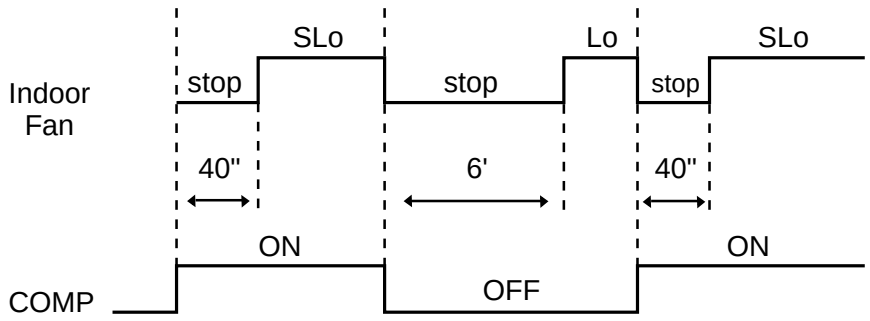
- Same as Anti-Freezing Control for Cooling Mode operation. (For Soft Dry region, 6 minutes waiting is valid during compressor stops.)

Compressor Reverse Rotation Protection Control

- Same as Compressor Reverse Rotation Protection Control for Cooling Mode Operation. (For Soft Dry region, 6 minutes waiting is valid during compressor stops.)

Automatic Fan Speed Mode

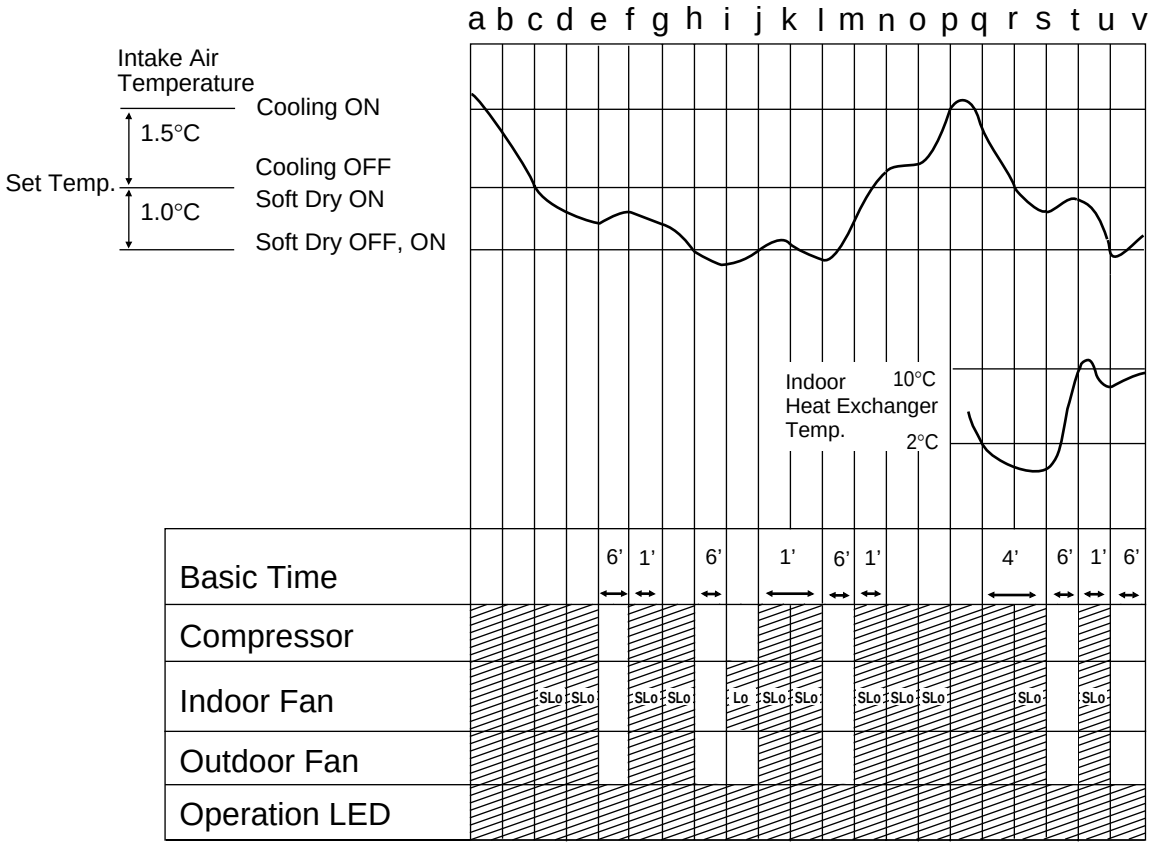
When Automatic Fan Speed is selected at Remote Control during Soft Dry Operation.
- Fan speed rotates at SLo and Lo speed.
- Deodorizing Control.



※ SLo: Indoor Fan rotates at 4-second intervals at low speed.

Operation Details

Soft Dry Operation Time Diagram



<Description of operation>

a – c, p~r	:	Cooling Operation
c – p, r – v	:	Soft Dry Operation
e – f	:	Soft Dry OFF
j – l	:	60 sec. Forced Operation
q – t	:	Anti Freezing Control

Operation

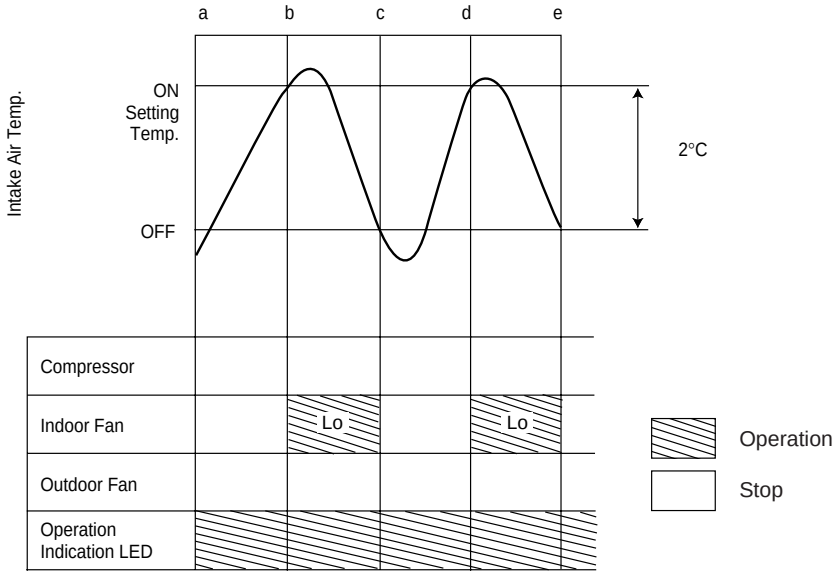
Stop

Operation Details

3) Air Circulation Mode Operation

- When the temperature near the ceiling reaches the setting temperature, Air Circulation Mode operation commences at low airflow volume. It stops when the temperature drops to 2°C below the setting temperature.

Air Circulation Mode Operation Time Diagram



4) Automatic Mode Operation

Standard for Determining Operation Mode

Intake Air Temperature	Cooling Mode / Soft Dry Mode
↑	
23°C	

	Setting Temperature (Standard)
Cooling Mode	25°C
Soft Dry Mode	22°C

(a) Indoor fan operates at Lo fan speed for 20 seconds.
(b) After judging indoor air temperature, the operation mode is determined and operation continued at the mode determined.
(c) After the operation mode has been determined, the mode does not change. However, Soft Dry mode operation includes Cooling mode operation.
(d) Room temperature adjustment.
The following are added to the setting temperature specified as above.

			Cooling	Soft Dry
Higher	→	+2°C	27°C	24°C
Standard	→	±0°C	25°C	22°C
Lower	→	–2°C	23°C	20°C

(e) The mode judging temperature and standard setting temperature can be increased by 2°C, by open the circuit of J X 2 at indoor electronic controller.

Intake Air Temperature	Cooling / Soft Dry
↑	
25°C	

	Setting Temperature (Standard)
Cooling Mode	27°C
Soft Dry Mode	24°C

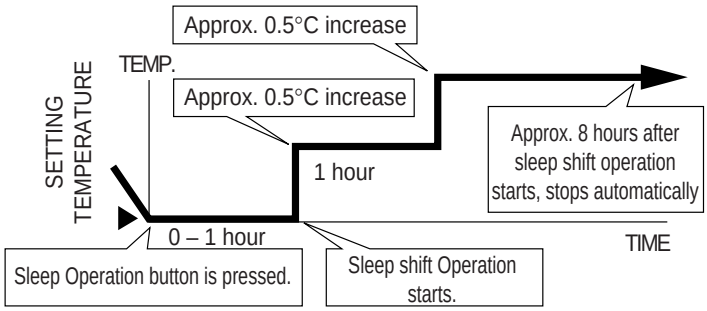
Operation Details

5) Sleep Mode Auto Operation

Cooling or Soft Dry Operation

When you press the SLEEP Mode, the following movement will start to avoid overcooling.

- When the room temperature reaches the setting temperature or after 1 hour of operation, sleep shift operation starts and the airflow volume will automatically change to low.
- The setting temperature will be risen by 0.5°C at the start of operation and by 0.5°C one hour later.
- The operation will stop after 8 hours.



6) Powerful Mode Operation.

- Purpose of this operation is to obtain the setting temperature quickly.
- When the Powerful Mode is set, the set temperature will be automatically decreased 3°C against the present setting temperature.
  This operation automatically will be running under Super High Fan speed.
- Vertical Airflow Direction:-
  – In 'manual' setting, the vane will automatically shift down 10° lower than previous setting.
  – In 'Auto' setting, the vane will automatically swing up and down. However the lower limit will be shifted 10° downward.
- Powerful Mode will operate for 15 minutes only.
- Powerful Mode will stop if:-
  – Powerful mode button is pressed again.
  – Stopped by ON/OFF switch.
  – Timer OFF activates.
  – Economy mode button is pressed.
  – Sleep mode is pressed.
  – Operation mode is changed.

7) Economy Mode Operation.

- Purpose of this operation is to save or reduced electrical power consumption of the room air conditioner.
- When the Economy Mode is set, the set temperature will be automatically increased 0.5°C against the present setting temperature. This operation automatically will be running under Random Fan speed.
  (Refer operation detail no. 9)
- Vertical Airflow Direction:-
  In 'manual' or 'Auto' setting, the vane will automatically change to Auto Air Swing.
- Economy Mode will stop if:-
  – Economy mode button is pressed again.
  – Stopped by ON/OFF switch.
  – Timer–off activates.
  – Powerful mode button is pressed.
  – Auto or Manual air swing button is pressed.

Operation Details

– Fan Speed control button is pressed.
– Sleep mode button is pressed ON.
– Operation mode is changed.

8) Random Auto Restart Control

- If there is a power failure, operation will be automatically restarted after 3 to 5 1/2 minutes when the power is resumed.
  It will start with previous operation mode and airflow direction.
- Restart time is decided randomly using 4 parameter:-
  Intake air temperature, setting temperature, fan speed and Air Swing Blade position.
- Auto Restart Control is not available when Timer or Sleep Mode is set.
- This control can be omitted by open the circuit of J X 1. (Refer Circuit Diagram)

9) Indoor Fan Speed Control

- Auto Fan Speed Control
  When set to Auto Fan Speed, the fan speed is adjusted between maximum and minimum setting as shown in the table.
- Manual Fan Speed Control
  Basic fan speed adjustment (3 settings, from Lo to Hi) can be carried out by using the Fan Speed selection button.

			SHi	Hi	Me	Lo	SLo	Random Speed
Cooling Mode	Manual Fan Speed	Normal		○	○	○		
		Powerful	○					
		Economy						○
	Auto Fan Speed	Normal		○	○			
		Powerful	○					
		Economy						○
Soft Dry Mode		Normal				○	○	
		Powerful				○	○	
		Economy				○	○	
Air Circulation Mode		Normal				○		
		Powerful						
		Economy						

Can setting by Remote Control
Cannot setting by Remote Control

※ SLo: Indoor Fan rotates at 4-second intervals at Low speed.
※ Lo, Lo¯ or Lo¯¯ Fan Speed is operated randomly during Random Fan Speed.

Random Fan Speed

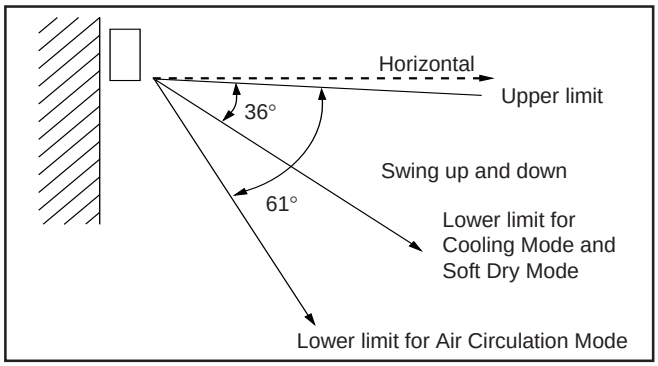
Random	A	B				C			
Fan Speed	LO	LO¯				LO¯¯			
Time	10"	4.5"	0.5"	4.5"	0.5"	4"	1"	4"	1"
Fan Motor	ON	ON	OFF	ON	OFF	ON	OFF	ON	OFF

Operation Details

10) Airflow Direction Control

Airflow Direction Auto-Control

- When set a Airflow Direction Auto-Control with remote control, the louver swings up and down as shown in the diagram.
- The louver does not swing when the Indoor Fan stops during operation.
- When stopped with remote control, the discharge vent is closed with the louver.

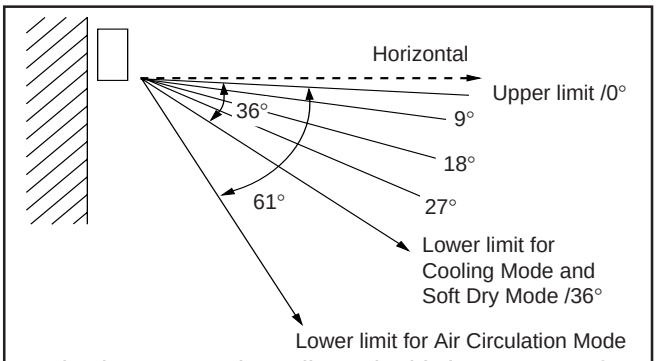


※ The left and right airflow direction louvers can be adjusted manually.

※ 1 There is no swinging while indoor fan is stopped during Cooling and Soft Dry operation.
※ 2 In Air Circulation operation, when the intake air temperature reaches set temperature, the airflow direction is changed from upper limit to lower limit. When the intake air temperature falls to 2°C lower than set temperature, the airflow direction is changed from lower limit to upper limit.

Airflow Direction Manual Control

- When the manual Airflow Direction Selection Button is pressed, the automatic airflow is released and the airflow direction louver move up and down in the range shown in the diagram.
  The louver can be adjusted by pressing the button to the desired louver position.
- When the remote control is used to stop the operation, the discharge vent is closed with airflow direction louver.



The louver can be adjusted with in a range of "Manual Airflow Direction Selection Button" is pressed.

※ The left and right airflow direction louvers can be adjusted manually.

11) Delay ON Timer Control

- When the Delayed ON Timer is set by using the remote control, the unit will start operate slightly before the set time, so that the room will reach nearly to the set temperature by the desired time.
- For Cooling and Soft Dry mode, the operation will start 15 minutes before the set time.
- For Automatic mode, the indoor fan will operate at Lo speed for 20 seconds, 15 minutes before the set time to detect the intake air temperature to determine the operation mode. The operation indication lamp will blink at this time.

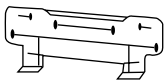
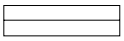
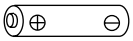
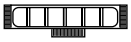
12) Remote Control Signal Receiving Sound

- Peep sound (Long) will be heard when:-
  – Stopping the Air Conditioner using ON/OFF switch.
  – Stopping the Sleep Mode.
  – Stopping the Powerful Mode.
  – Stopping the Economy Mode.
- Pep sound (Short) will be heard for others.
- To switch off the peep sound
  press the "Auto Operation Button" continuously for 10 seconds or more.
  Repeat the above if you want to switch ON the beep sound or switch OFF and ON back the power switch at the indoor unit.

※ However, if the "Auto Operation Button" have been pressed the Automatic cooling operation will be activated. If you do not require this operation, you may change it by using the remote control.

Installation Information

Attached accessories

No.	Accessories part	Qty.	No.	Accessories part	Qty.
1	Installation plate 	1	6	Band	2
			7	Vinyl tape	3
2	Installation plate fixing screw	4	8	Vinyl tape 	1
3	Remote control	1			
4	Battery 	2			
5	Air purifying filter 	2			

Accessories: Flaring piping kit
CZ-3F5, 7AEN (CS/CU-C73KE, C93KE)
CZ-4F5, 7, 10AN (CS/CU-C123KE)

SELECT THE BEST LOCATION

INDOOR UNIT

- There should not be any heat source or steam near the unit.
- There should not be any obstacles blocking the air circulation.
- A place where air circulation in the room is good.
- A place where drainage can be easily done.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.
- Indoor unit of this room air conditioner shall be installed on the wall in a height of at least 2.3 m.

OUTDOOR UNIT

- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- If piping length is over the rated length, additional refrigerant should be added as shown in the table.

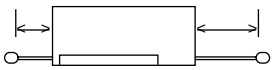
MODEL	Piping size		Common Length	Max. Elevation (m)	Max. Piping Length (m)	Additional Refrigerant (g/m)
	Gas	Liquid				
C73KE/C93KE	3/8"	1/4"	7.5	5	10	10
C123KE	1/2"	1/4"	7.5	5	15	10

Installation Information

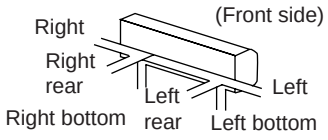
Indoor / Outdoor unit installation diagram

Length of power supply cord

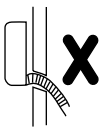
about 1.1 m about 1.8 m



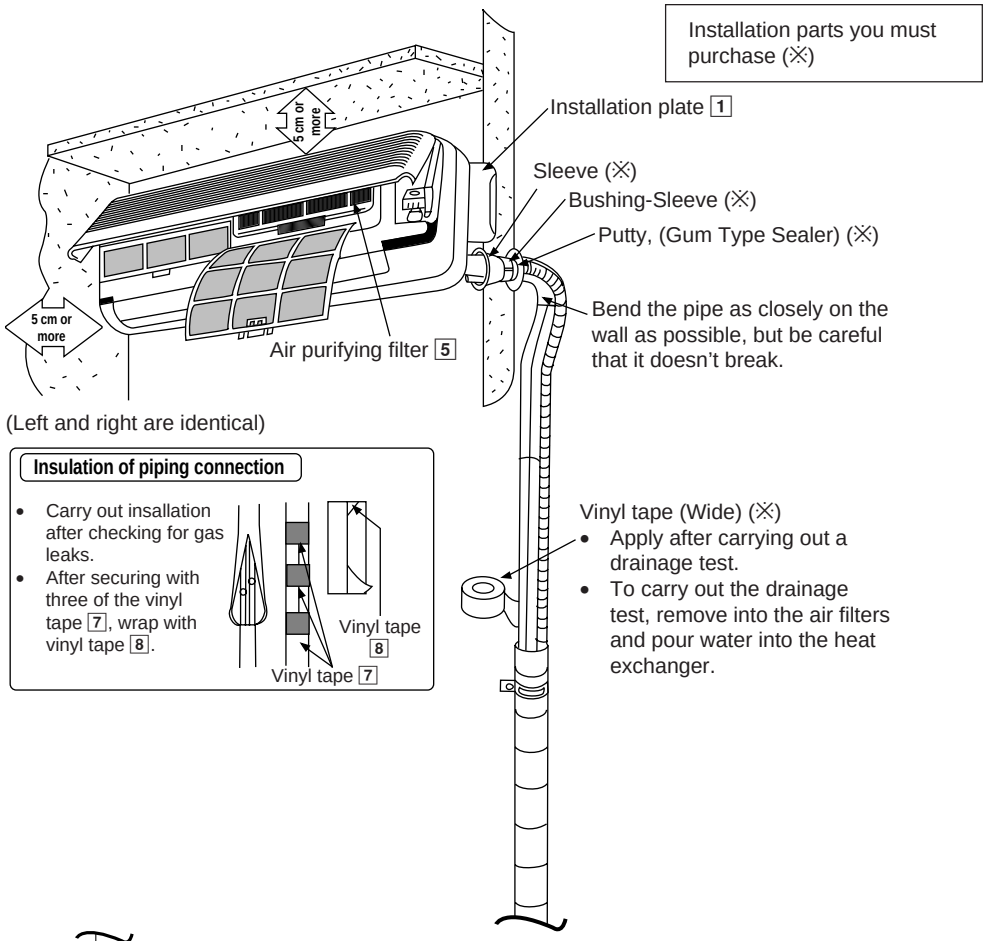
Piping direction



Attention not to bend up drain hose



Installation parts you must purchase (※)

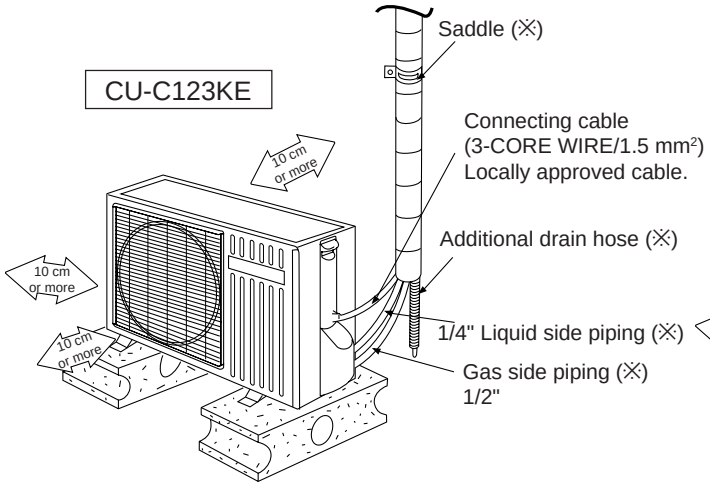

5 cm or more
5 cm or more
Installation plate 1
Sleeve (※)
Bushing-Sleeve (※)
Putty, (Gum Type Sealer) (※)
Bend the pipe as closely on the wall as possible, but be careful that it doesn't break.
Air purifying filter 5
Vinyl tape (Wide) (※)
• Apply after carrying out a drainage test.
• To carry out the drainage test, remove into the air filters and pour water into the heat exchanger.

(Left and right are identical)

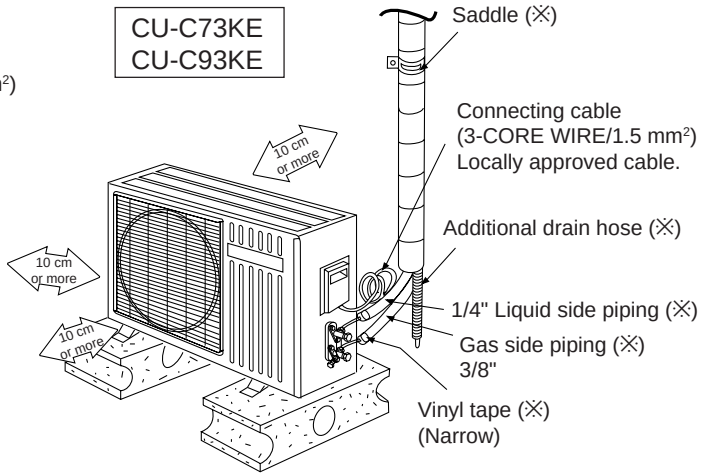
Insulation of piping connection

- Carry out insallation after checking for gas leaks.
- After securing with three of the vinyl tape 7, wrap with vinyl tape 8.

CU-C123KE

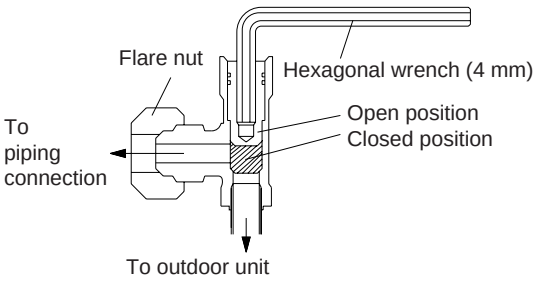
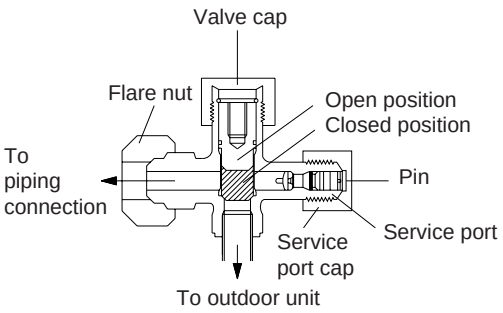

Saddle (※)
Connecting cable (3-CORE WIRE/1.5 mm²) Locally approved cable.
10 cm or more
10 cm or more
10 cm or more
Additional drain hose (※)
1/4" Liquid side piping (※)
Gas side piping (※) 1/2"

CU-C73KE
CU-C93KE


Saddle (※)
Connecting cable (3-CORE WIRE/1.5 mm²) Locally approved cable.
10 cm or more
10 cm or more
10 cm or more
Additional drain hose (※)
1/4" Liquid side piping (※)
Gas side piping (※) 3/8"
Vinyl tape (※) (Narrow)

- This illustration is for explanation purposes only. The indoor unit will actually face a different way.

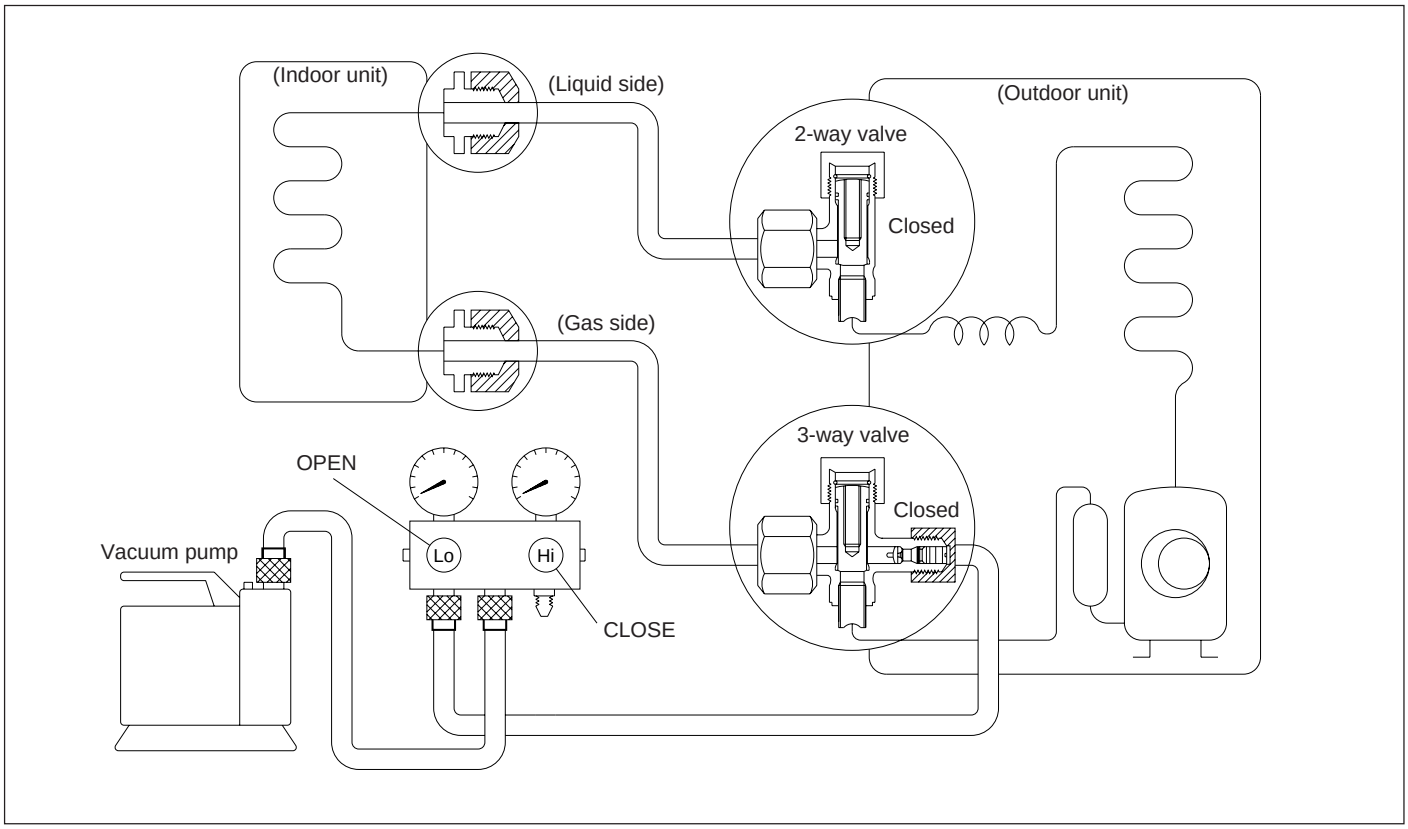
2-way • 3-way Valve

	2-way Valve (Liquid Side)	3-way Valve (Gas Side)	
			
Works	Shaft Position	Shaft Position	Service Port
Shipping	Close (With valve cap)	Closed (With valve cap)	Closed (With cap)
Evacuation (Installation and Re-installation)	Closed (Counter-Clockwise)	Closed (Clockwise)	Open (Push-pin)
Operation	Open (With valve cap)	Open (With valve cap)	Closed (With cap)
Pumping down (Transferring)	Closed (Clockwise)	Open (Counter-clockwise)	Open (Connected manifold gauge)
Evacuation (Servicing)	Open	Open	Open With vacuum pump
Gas charging (Servicing)	Open	Open	Open (With charging cylinder)
Pressure check (Servicing)	Open	Open	Open (Connected manifold gauge)
Gas releasing (Servicing)	Open	Open	Open (Connected manifold gauge)

1 Evacuation of Installation

WHEN INSTALLING AN AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the following procedure.

If air remain in the indoor unit and refrigeration pipes, it will affect the compressor, reduce to cooling capacity, and could lead to a malfunction.



Procedure:

(1) Connect a charging hose with a push pin to the Low side of a charging set and the service port of a 3-way valve.

- Be sure to connect the end of the charging hose with the push pin to the service port.

(2) Connect the centre hose of the charging set to a vacuum pump.

(3) Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 MPa (0 cmHg) to –0.1 MPa (–76 cmHg). Then evacuate the air for approximately ten minutes.

(4) Close the Low side valve of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID GAS LEAKAGE.

(5) Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.

(6) Tighten the service port cap at a torque of 18 N•m with a torque wrench.

(7) Remove the valve caps of the 2-way valve and the 3-way valve. Position both of the valves to "open" using a hexagonal wrench (4 mm).

(8) Mount the valve caps onto the 2-way and 3-way valves.

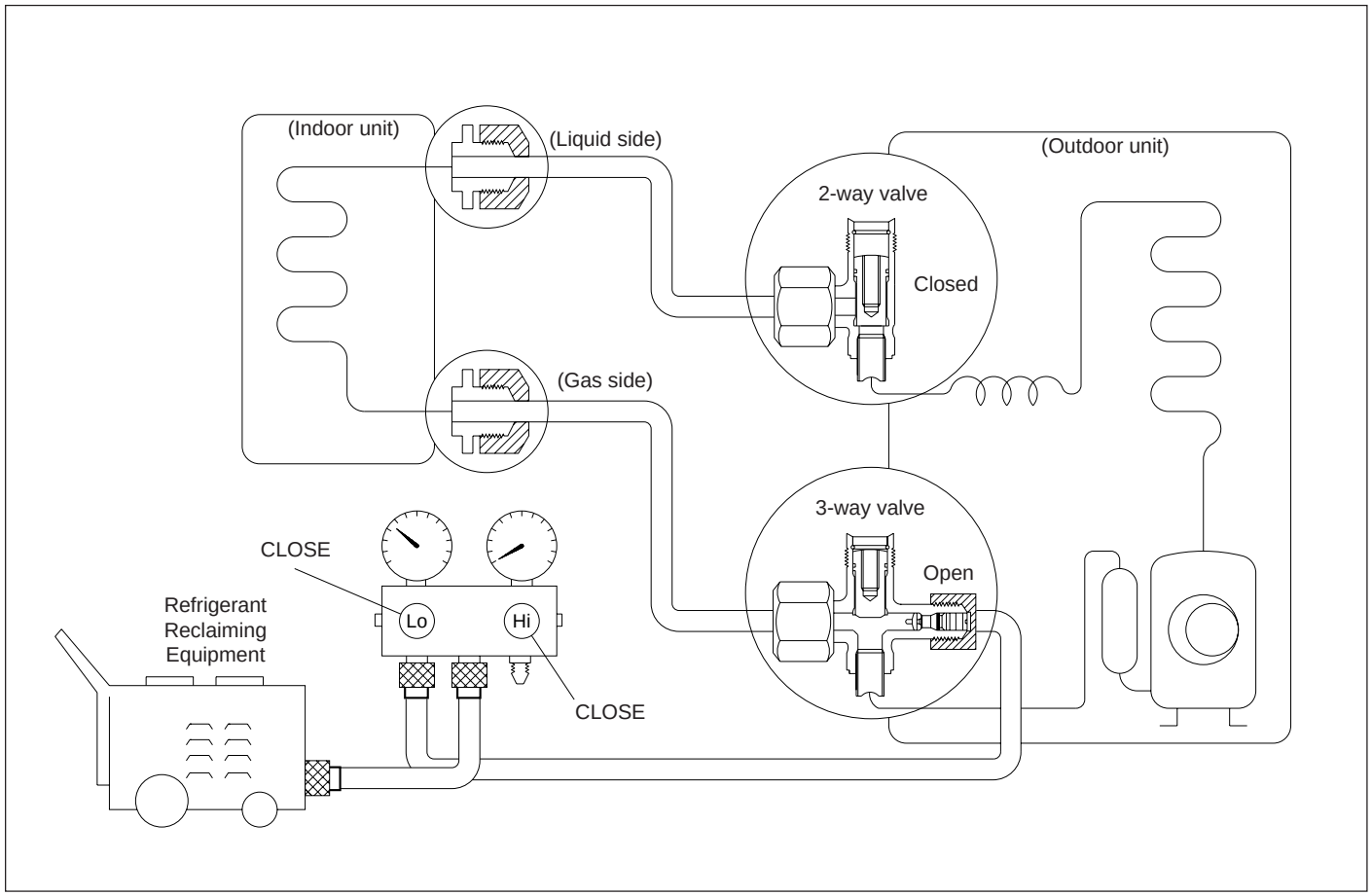
- Be sure to check for gas leakage.

Caution

If gauge needle does not move from 0 cmHg to –76 cmHg in step (3) above, take the following measures:

If the leaks stop when the piping connections are tightened further, continue working from step (3).
If the leaks do not stop when the connections are retightened, repair the location of the leak.

2 Pumping down



Procedure:

(1) Confirm that both the 2-way and 3-way valves are set to the opened position.

- Remove the valve stem caps and confirm that the valve stems are in the opened position.
- Be sure to use a hexagonal wrench to operate the valve stems.

(2) Operate the unit for 10 to 15 minutes.

(3) Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.

- Connect the charge hose with the push pin to the Gas service port.

(4) Air purging of the charge hose.

- Open the low-pressure valve on the charge set slightly to purge air from the charge hose.

(5) Set the 2-way valve to the closed position.

(6) Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 0 MPa (0 kg/cm²G).

If the unit cannot be operated at the cooling condition (weather is rather cool), short the Pumping Down pins on the Main Control P.C.B.

(Simply press the pumping down button if it is equipped.)

So that the unit can be operated.

(7) Immediately set the 3-way valve to the closed position.

- Do this quickly so that the gauge ends up indicating 0.1 MPa (1 kg/cm²G) to 0.3 MPa (3 kg/cm²G)

(8) Use refrigerant reclaiming equipment to collect refrigerant from indoor unit and pipes.

(9) Disconnect the charge set, and mount the 2-way and 3-way valve's stem caps and the service port caps.

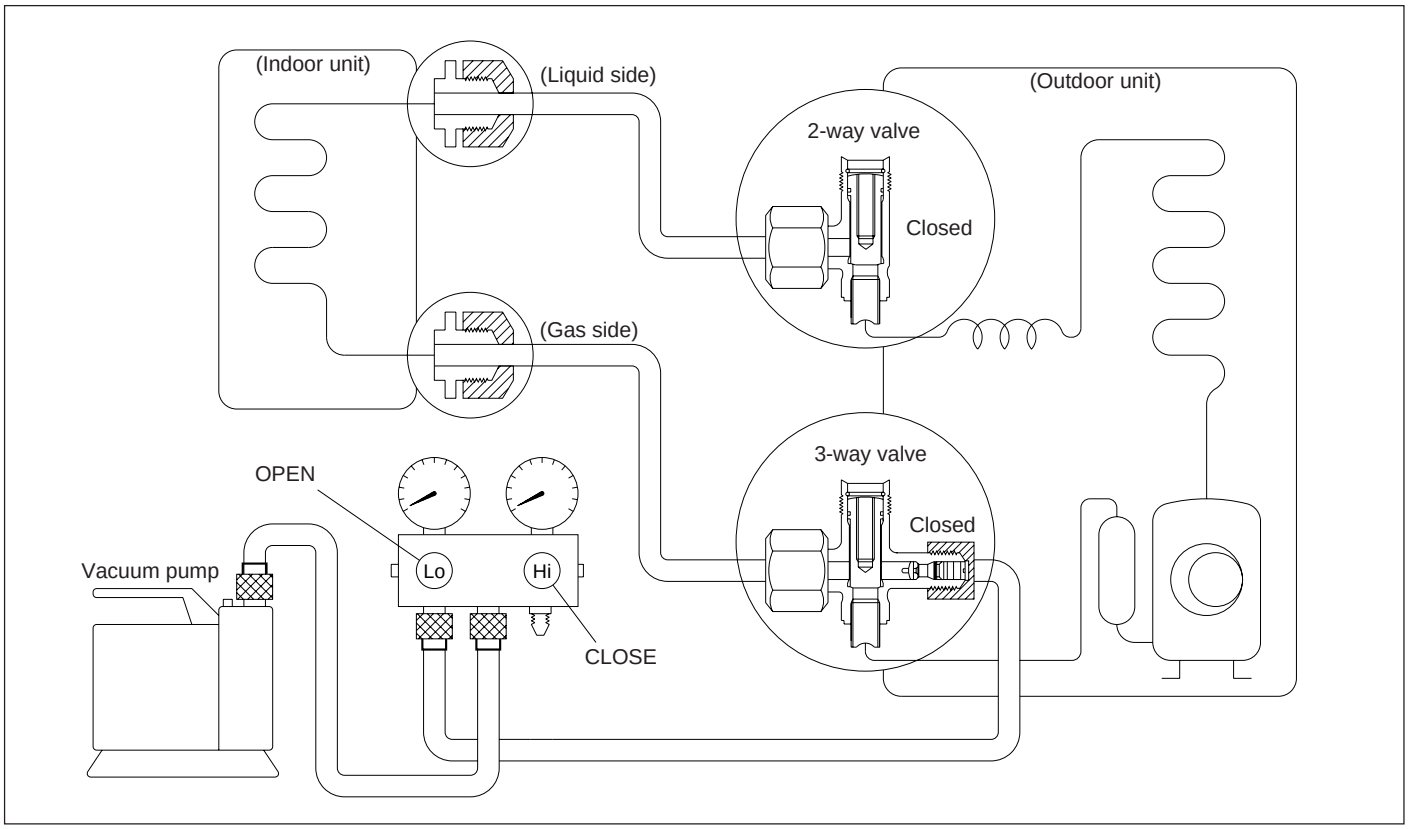
- Use a torque wrench to tighten the service port cap to a torque of 18 N•m.
- Be sure to check for gas leakage.

(10) Disconnect pipes from indoor unit and outdoor unit.

3 Evacuation of Re-installation

WHEN RE-INSTALLING AN AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the following procedure.

If air remain in the indoor unit and refrigeration pipes, it will affect the compressor, reduce to cooling capacity, and could lead to a malfunction.



Procedure:

(1) Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve.
- Be sure to connect the end of the charging hose with the push pin to the service port.

(2) Connect the center hose of the charging set to a vacuum pump.

(3) Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 MPa (0 cmHg) to –0.1 MPa (–76 cmHg). Then evacuate the air for approximately ten minutes.

(4) Close the Low side valve of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID GAS LEAKAGE.

(5) Disconnect the charging hose from the vacuum pump .

(6) Charge the pipes and indoor unit with gas refrigerant from 3-way valve service port, and then discharge the refrigerant until low side (gas side) gauge needle indicates 0.3 MPa (3 kg/cm^2)

(7) Tighten the service port cap at a torque of 18N•m with a torque wrench.

(8) Remove the valve caps of the 2-way valve and the 3-way valve. Position both of the valves to "open" using a hexagonal wrench (4 mm).

(9) Mount valve caps onto the 2-way and 3-way valves.
- **BE SURE TO USE REFRIGERANT RECLAIMING EQUIPMENT WHILE DISCHARGING THE REFRIGERANT.**
- Purge the air from charge set's centre hose.
- Be sure to check for gas leakage.

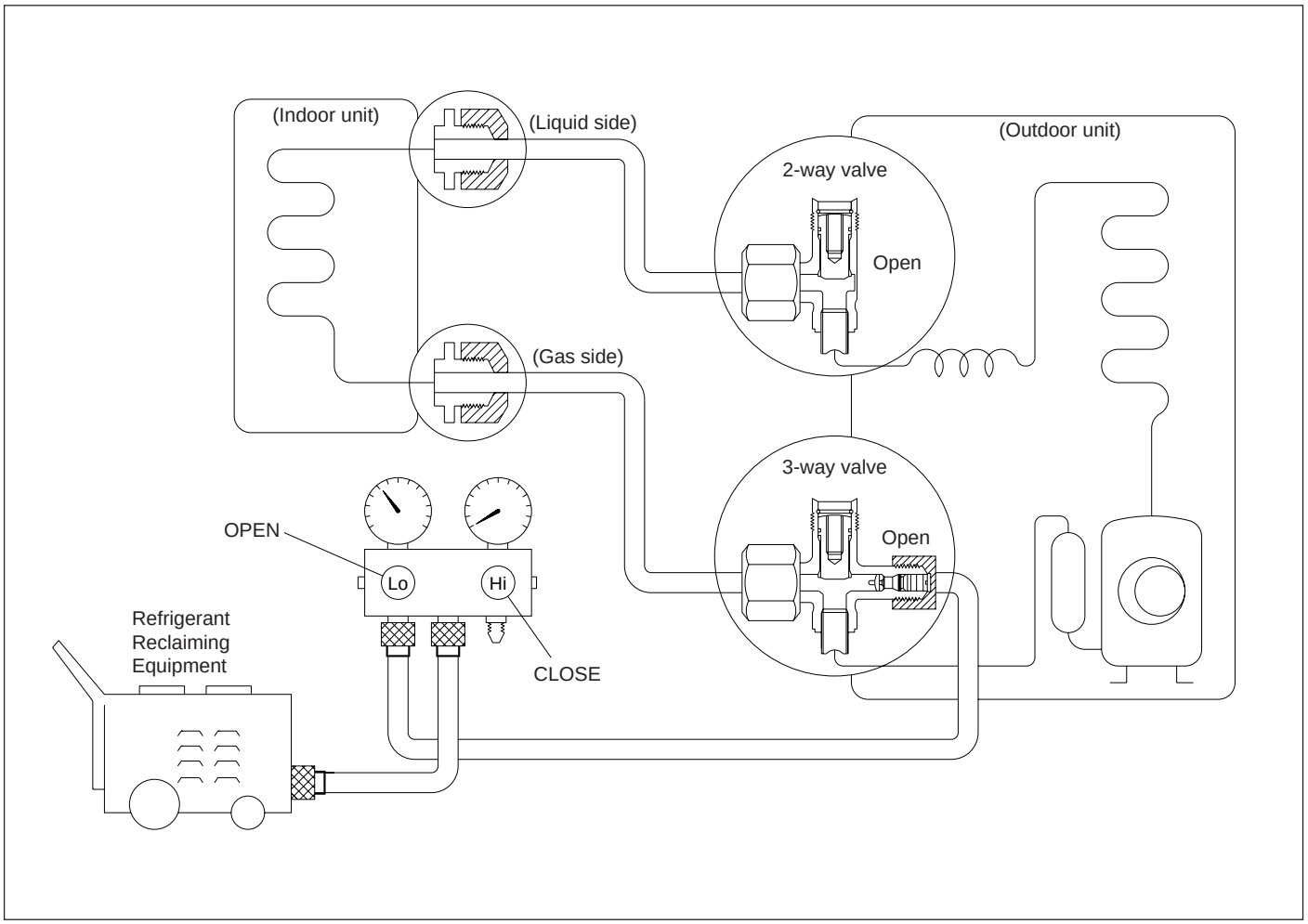
Caution

If gauge needle does not move from 0 MPa (0 cmHg) to –0.1 MPa (–76 cmHg) in step (3) above, take the following measures:

If the leaks stop when the piping connections are tightened further, continue working from step (3).
If the leaks do not stop when the connections are retightened, repair the location of the leak.

4 Balance refrigerant of the 2-way, 3-way valves

(Lack of refrigerant in the refrigeration cycle)



Procedure:

(1) Confirm that both the 2-way and 3-way valves are set to the open position.

(2) Connect the charge set to the 3-way valve's service port.

- Leave the valve on the charge set closed.
- Connect the charge hose with the push-pin to the service port.

(3) Connect the charge set's centre hose to refrigerant reclaiming equipment.

- Purge the air from charge hose.

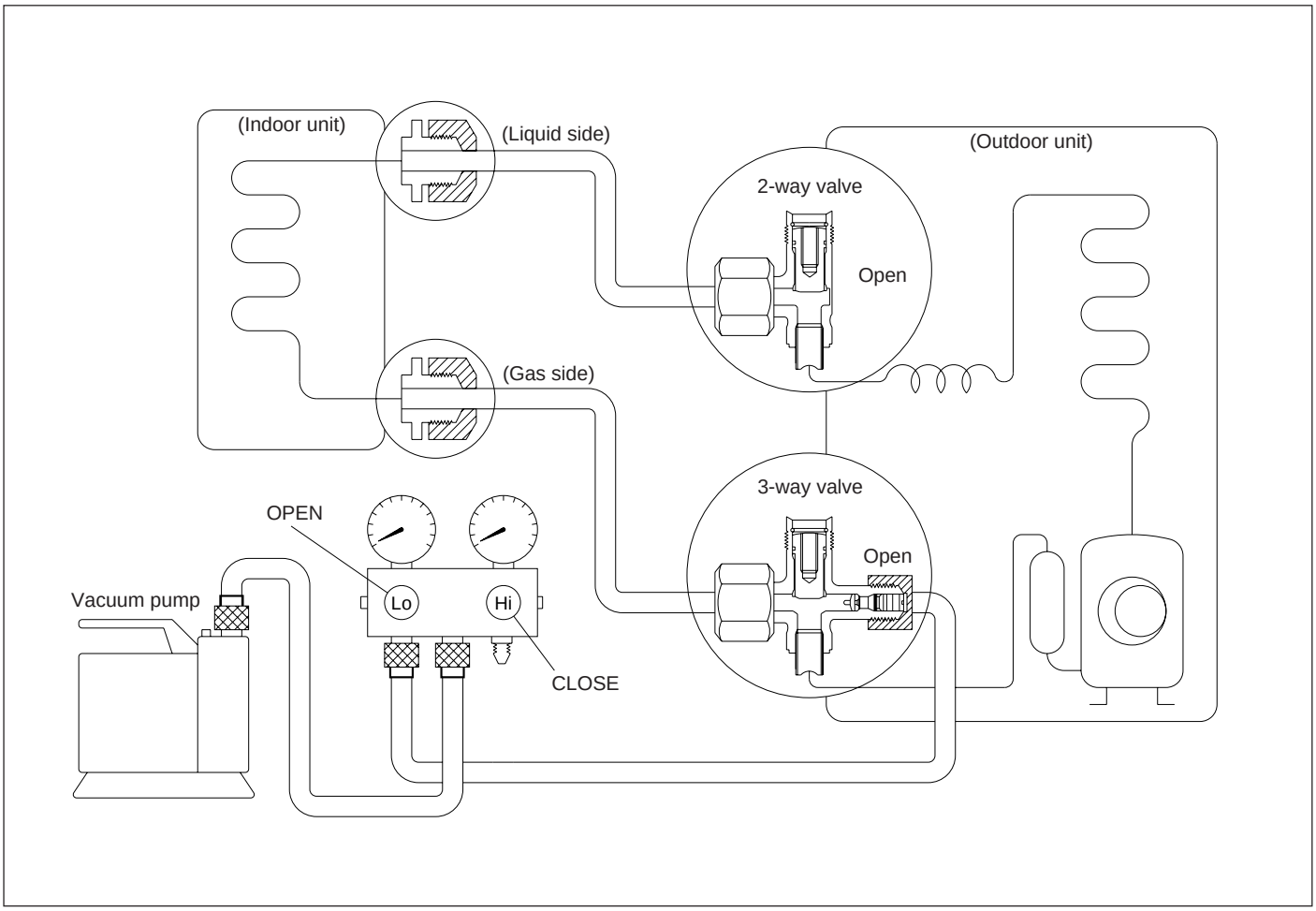
(4) Open the valve (Low side) on the charge set and discharge the refrigerant until the gauge indicates 0.05 MPa (0.5 kg/cm²G) to 0.1 MPa (1 kg/cm²G).

- If there is no air in the refrigeration cycle (the pressure when the air conditioner is not running is higher than 0.1 MPa (1 kg/cm²G), discharge the refrigerant until the gauge indicates 0.05 MPa (0.5 kg/cm²G) to 0.1 MPa (1 kg/cm²G). If this is the case, it will not be necessary to apply a evacuation.
- Discharge the refrigerant gradually; if it is discharged too suddenly, the refrigeration oil will also be discharged.

(5) Turn on refrigerant reclaiming equipment .

5 Evacuation

(No refrigerant in the refrigeration cycle)



Procedure:

(1) Connect the vacuum pump to the charge set's centre hose.

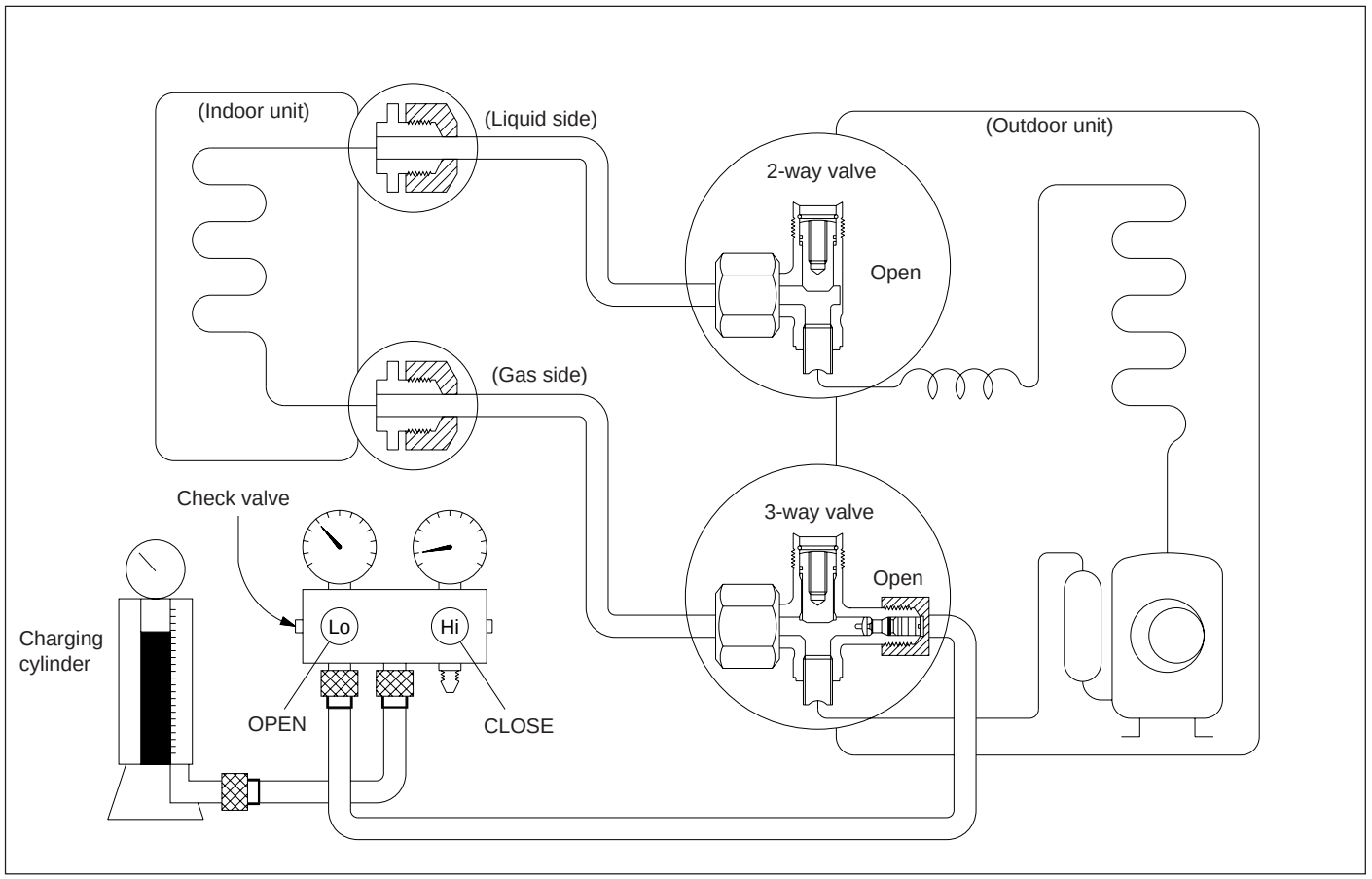
(2) Evacuation for approximately one hour.
- Confirm that the gauge needle has moved toward –0.1 MPa (–76 cmHg) [vacuum of 4 mmHg or less.]

(3) Close the valve (Low side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).

(4) Disconnect the charge hose from the vacuum pump.
- Vacuum pump oil
  If the vacuum pump oil becomes dirty or depleted, replenish as needed.

6 Gas charging

(After Evacuation)



Procedure:

(1) Connect the charge hose to the charging cylinder.

- Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder.

(2) Purge the air from the charge hose.

- Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).

(3) Open the valve (Low side) on the charge set and charge the system with liquid refrigerant.

- If the system cannot be charged with the specified amount of refrigerant, it can be charged with a little at a time (approximately 150 g each time) while operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure. (pumping down-pin)

This is different from previous procedures. Because you are charging with liquid refrigerant from the gas side, absolutely do not attempt to charge with large amount of liquid refrigerant while operating the air conditioner.

(4) Immediately disconnect the charge hose from the 3-way valve's service port.

- Stopping partway will allow the refrigerant to be discharged.
- If the system has been charged with liquid refrigerant while operating the air conditioner, turn off the air conditioner before disconnecting the hose.

(5) Mount the valve stem caps and the service port cap.

- Use torque wrench to tighten the service port cap to a torque of 18 N•m.
- Be sure to check for gas leakage.

Servicing Information

- **Inspection points for the Indoor Electronic Controller**

1. The Electronic Controller, a signal Receiver and an Indicator (Fig. 2) can be seen by the below steps:

   – Remove the 2 caps and 2 screws at the bottom of the front grille. (Fig. 1)

   – Remove the front grille by releasing the 2 hooks at the top of the front grille. (Fig. 1)

   – Remove the control board cover by releasing the 2 tabs at left, 1 tab on top and 2 more tabs at right side of the control board cover. (Fig. 1)

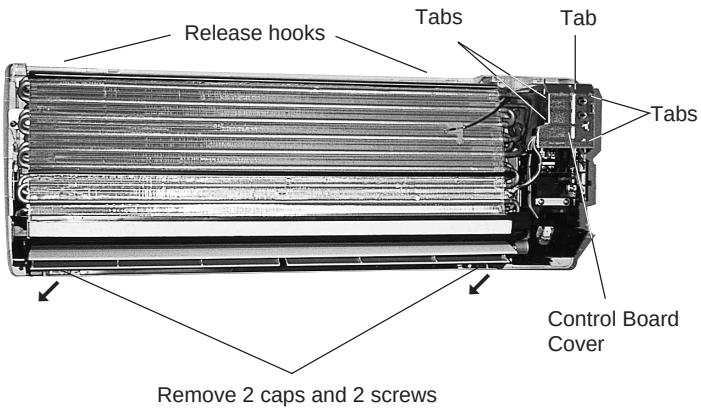


Fig. 1

2. To remove the Electronic Controller, release the hook that holding the electronic controller. (Fig. 2)

- **Indoor Fan Motor removal procedure :-**

1. Remove the control board by:-

   – Releasing CN-C (GRN) connector
   – Releasing CN-FM (GRN) connector
   – Releasing CN-STM connector
   – Remove the earth wire screw
   – Release the intake air sensor
   – Release the piping sensor

   } (Fig. 2)

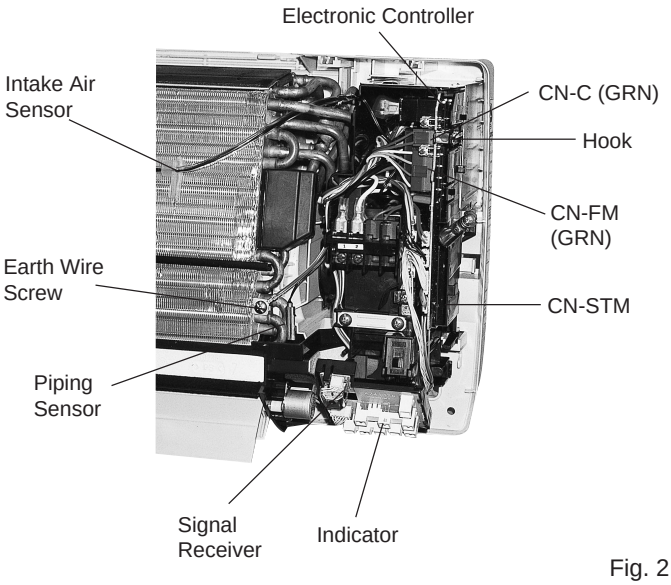


Fig. 2

   – Remove the right and left screws.(Fig. 3)

   – Then remove the control board by pressing down the hook at the left and press up the right hook. (Fig. 3)

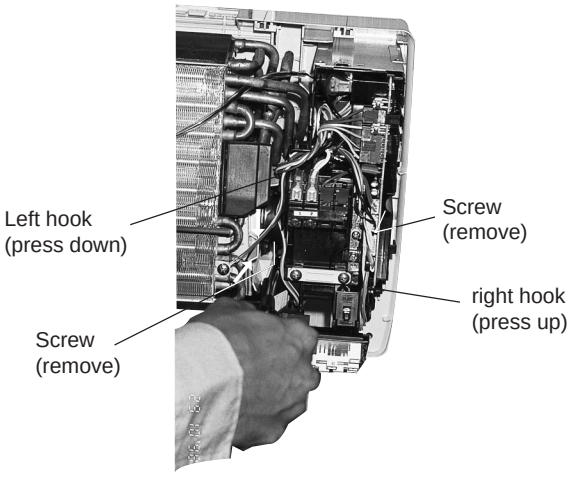


Fig. 3

Servicing Information

2. Remove the Fan Motor by :-

   – Release the fan motor leadwire by pressing the hook at the center of the connector. (Fig. 4)

   – Then remove the particular piece that holding the fan motor by pressing the tab. (Fig. 4)

   – Remove the discharge grille and then the drain hose. (Fig. 4)

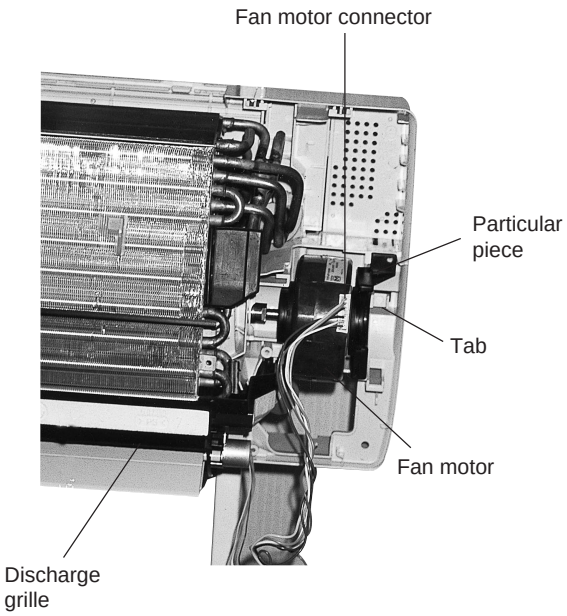


Fig. 4

   – Finally remove the fan motor by removing the screw. (Fig. 5)

   – REMINDER - To reinstall the fan motor, adjust the connector of the fan motor as Figure 5.

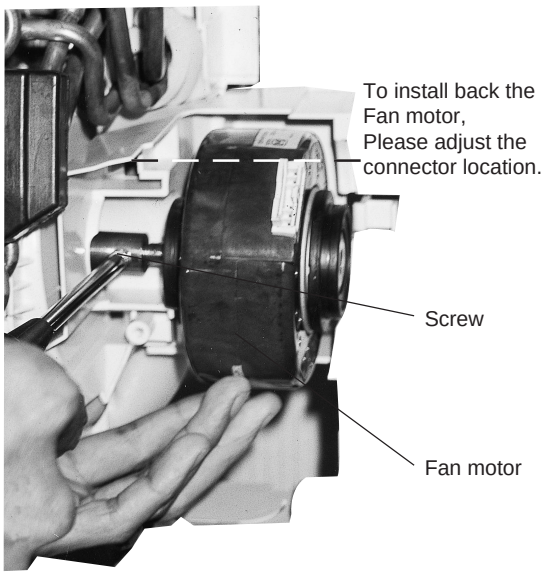


Fig. 5

Servicing Information

- **Cross Flow Fan Removal Procedure.**

1. Remove the control board and the fan motor by referring to the "Indoor Fan Motor Removal Procedure".

2. Remove the evaporator screw (Fig. 6)

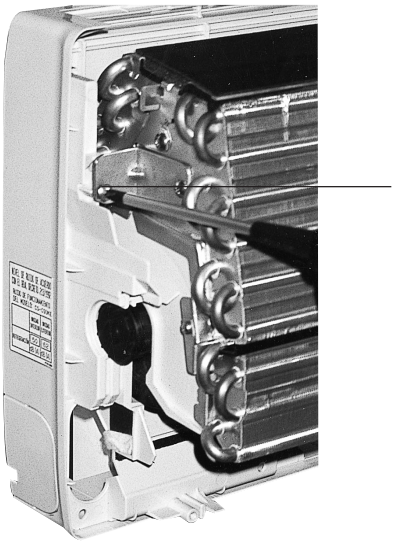


Fig. 6

3. Press the particular piece to loosen the evaporator. (Fig. 7)

4. Remove the bearing. (Fig. 7)

5. Push up the evaporator and take out the cross flow fan. (Fig. 7)

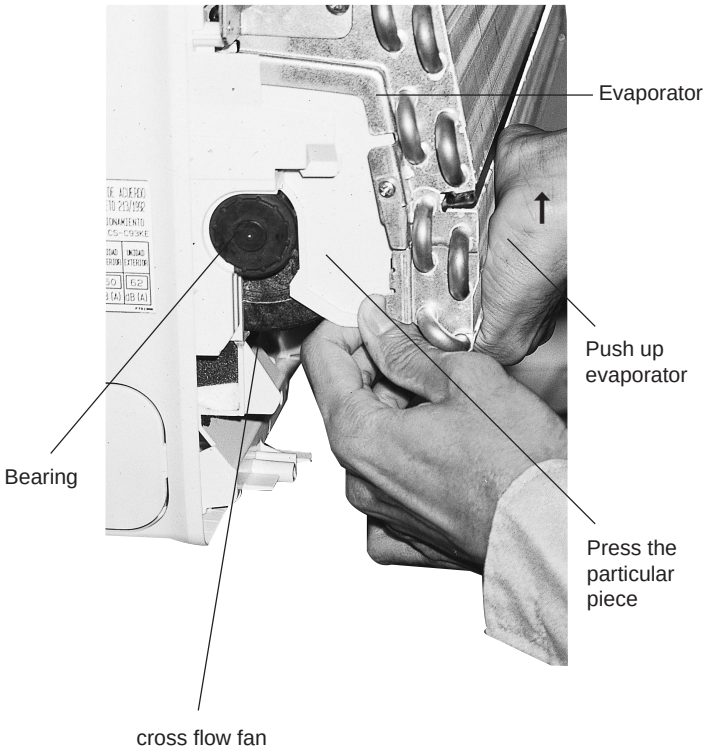
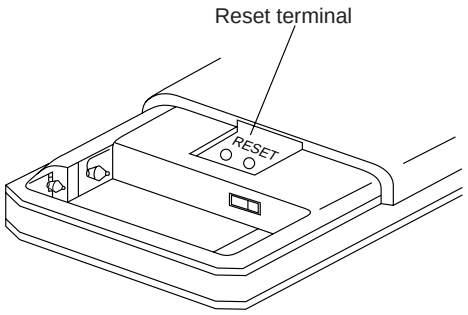


Fig. 7

Servicing Information

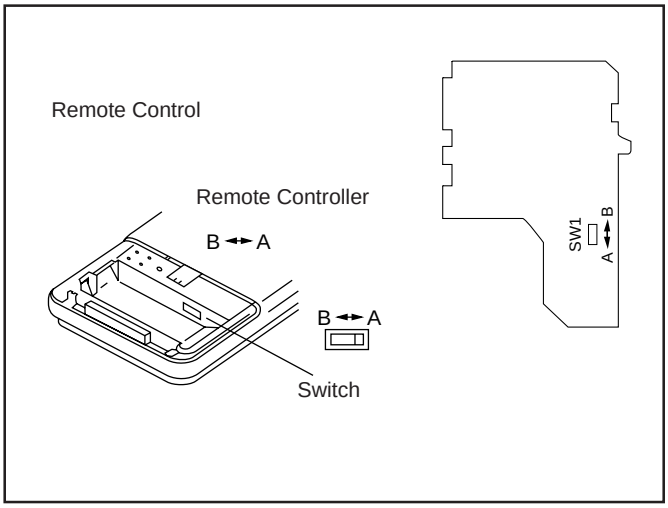
- **Remote Control Reset**

  When the batteries are inserted for the first time, or the batteries are replaced, all the indications will blink and the remote control might not work.
  If this happens, remove the back cover of the remote control and you will find a resetting terminal, and by shorting it with a minus screwdriver, it will return to normal.



- **Changing the wireless remote control transmission code**

  When two indoor units are installed in the same room, in order to prevent operating errors caused by using two remote controls, set up the remote control [B ↔ A] switch (SW1).
  The unit is set to A when it is shipped.



- **By adding a jumper wire to the remote control side and a carbon resistor (1/4 W, 10 kΩ) to the indoor printed circuit board, it is possible to select from 4 types of transmission codes including the condition at time of delivery condition (1).**

	Remote control		Indoor printed circuit board		Note
	Switch SW B ↔ A	J – B	Switch SW1	RX	
1	A	———	A	———	At product delivery
2	B	———	B	———	
3	A	Jumper wire	A	10kΩ	
4	B	Jumper wire	B	10kΩ	

Troubleshooting Guide

Refrigeration cycle system

In order to diagnose malfunctions, make sure that there are no electrical problems before inspecting the refrigeration cycle. Such problems include insufficient insulation, problem with the power source, malfunction of a compressor and a fan.
The normal outlet air temperature and pressure of the refrigeration cycle depends on various conditions, the standard values for them are shown in the table to the right.

Normal Pressure and Outlet Air Temperature (Standard)

	Gas pressure MPa (kg/cm^2G)	Outlet air temperature (°C)
Cooling mode	0.4 ~ 0.6 (4 ~ 6)	12 ~ 16

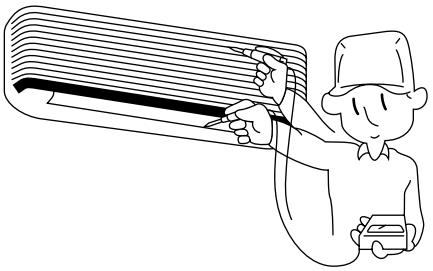
★ Condition: Indoor fan speed; High
Outdoor temperature 35°C

Difference in the intake and outlet air temperatures

→ More than 8°C (15 minutes after an operation is started.) → Normal

↓ Less than 8°C at the cooling mode

- **Measuring the air temperature difference**



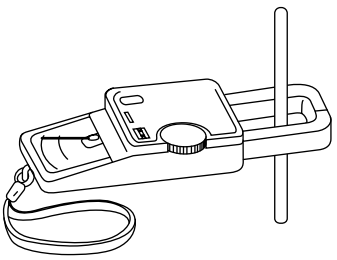
Value of electric current during operation

→ Higher than specified → Dusty condenser preventing heat radiation

→ Higher than specified → Excessive amount of refrigerant

↓ Lower than specified

- **Measuring electric current during operation**



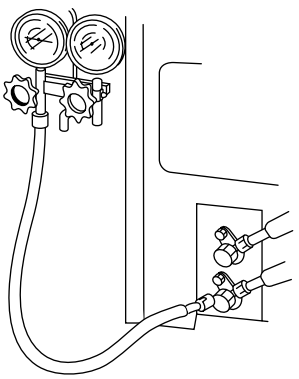
Gas side pressure

→ Cooling Mode High → Inefficient compressor

→ Low → Insufficient refrigerant

→ Low → Clogged strainer or capillary tube

- **Measuring gas side pressure**



Troubleshooting Guide

1. Relationship between the condition of the air conditioner and pressure and electric current

Condition of the air conditioner	Cooling Mode		
	Low Pressure	High Pressure	Electric current during operation
Insufficient refrigerant (gas leakage)	↘	↘	↘
Clogged capillary tube or Strainer	↘	↘	↘
Short circuit in the indoor unit	↘	↘	↘
Heat radiation deficiency of the outdoor unit	↗	↗	↗
Inefficient compression	↗	↘	↘

- Carry out the measurements of pressure, electric current, and temperature fifteen minutes after an operation is started.

2. Diagnosis methods of a malfunction of a compressor

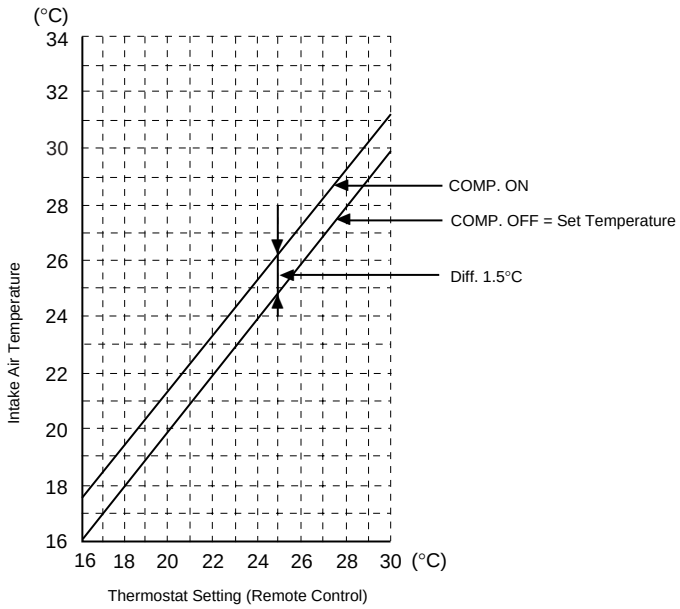
Nature of fault	Symptom
Insufficient compressing of a compressor	• Electric current during operation becomes approximately 20% lower than the normal value. • The discharge tube of the compressor becomes abnormally hot (normally 70 to 90°C). • The difference between high pressure and low pressure becomes almost zero.
Locked compressor	• Electric current reaches a high level abnormally, and the value exceeds the limit of an ammeter. In some cases, a breaker turns off. • The compressor has a humming sound.

Technical Data

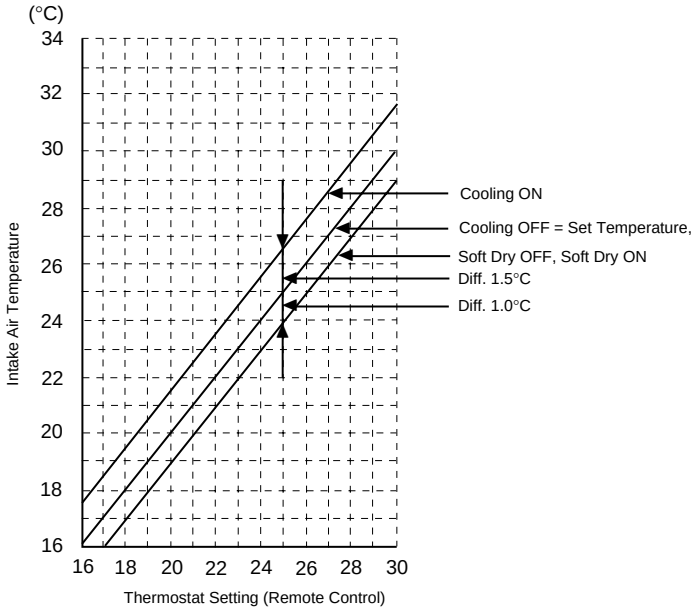
■ Thermostat characteristics

CS-C73KE / CS-C93KE / CS-C123KE

- **Cooling**



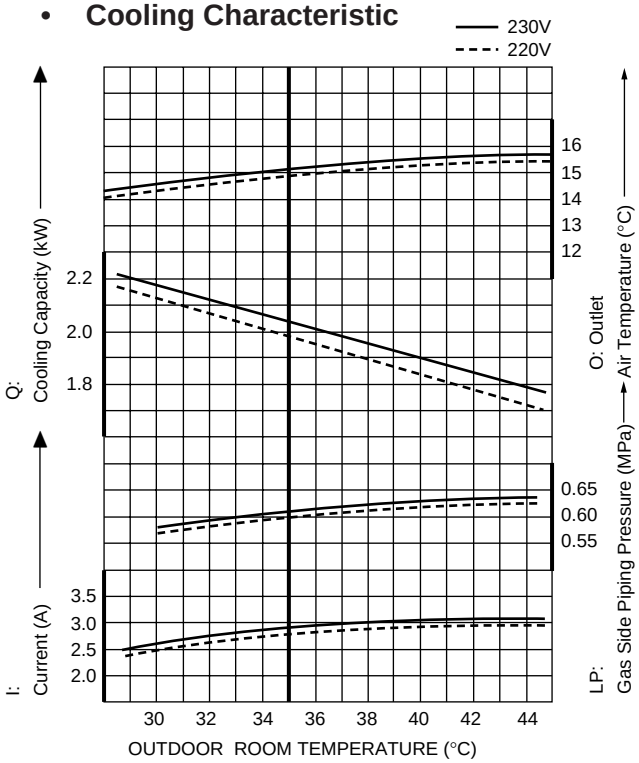
- **Soft Dry**



■ Operation characteristics

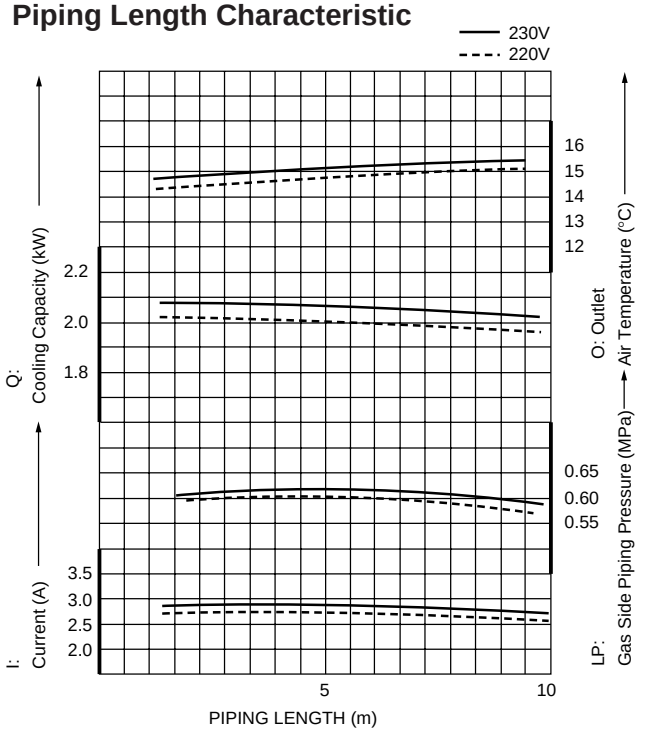
CS-C73KE / CU-C73KE

- **Cooling Characteristic**



[Condition] Room temperature: 27/19°C
Cooling operation: At High fan
Piping length: 7.5 m

- **Piping Length Characteristic**



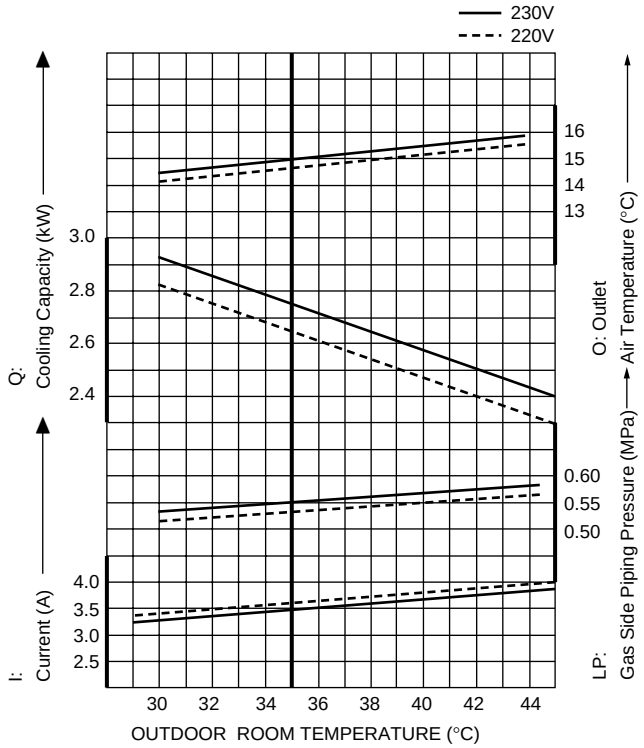
[Condition] Room temperature: 27/19°C
Outdoor temperature: 35/34°C
Cooling opeartion: At High fan

Technical Data

■ Operation characteristics

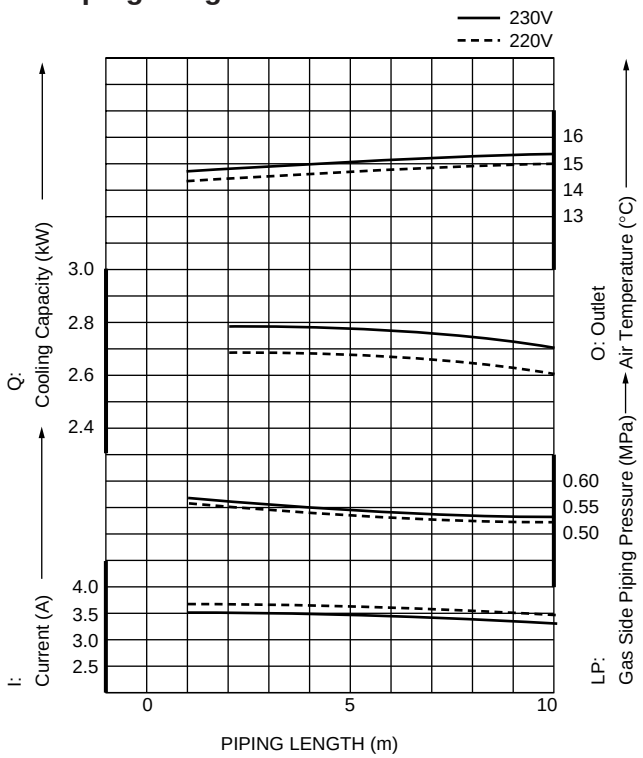
CS-C93KE / CU-C93KE

- **Cooling Characteristic**



[Condition] Room temperature: 27/19°C
Cooling operation: At High fan
Piping length: 7.5 m

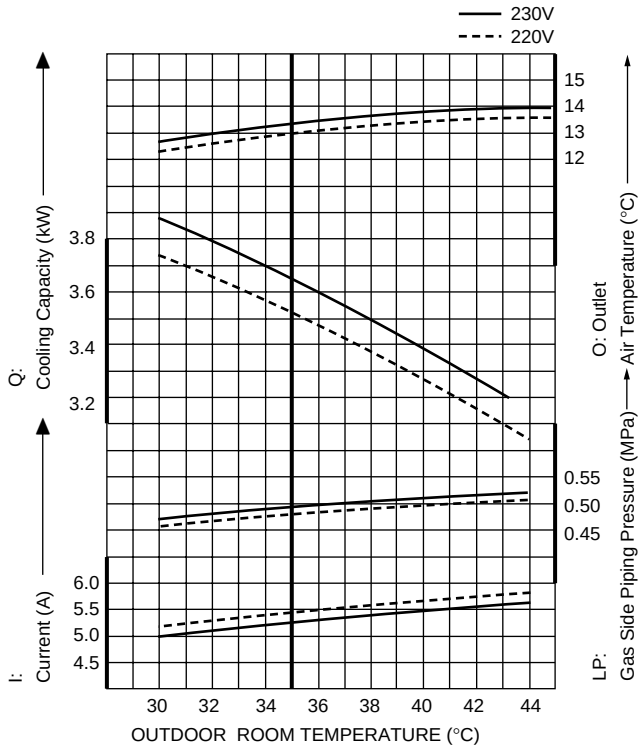
- **Piping Length Characteristic**



[Condition] Room temperature: 27/19°C
Outdoor temperature: 35/34°C
Cooling opeartion: At High fan

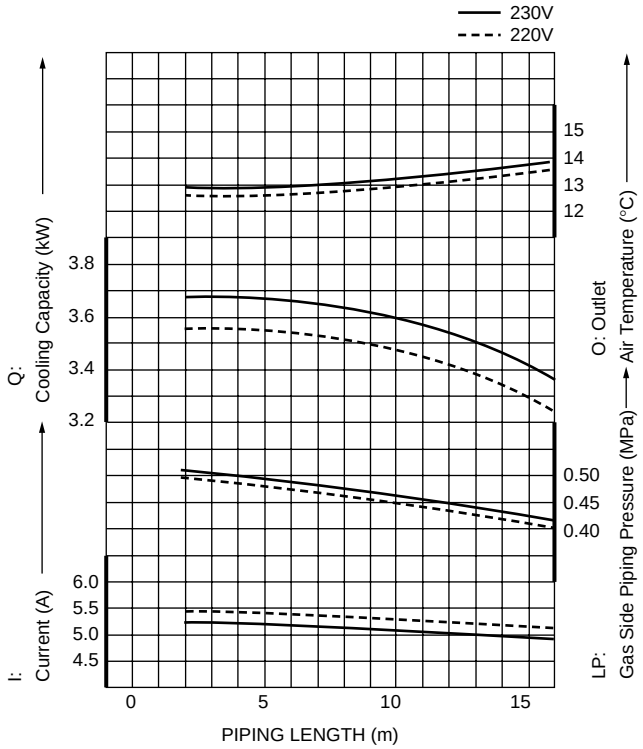
CS-C123KE / CU-C123KE

- **Cooling Characteristic**



[Condition] Room temperature: 27/19°C
Cooling operation: At High fan
Piping length: 7.5 m

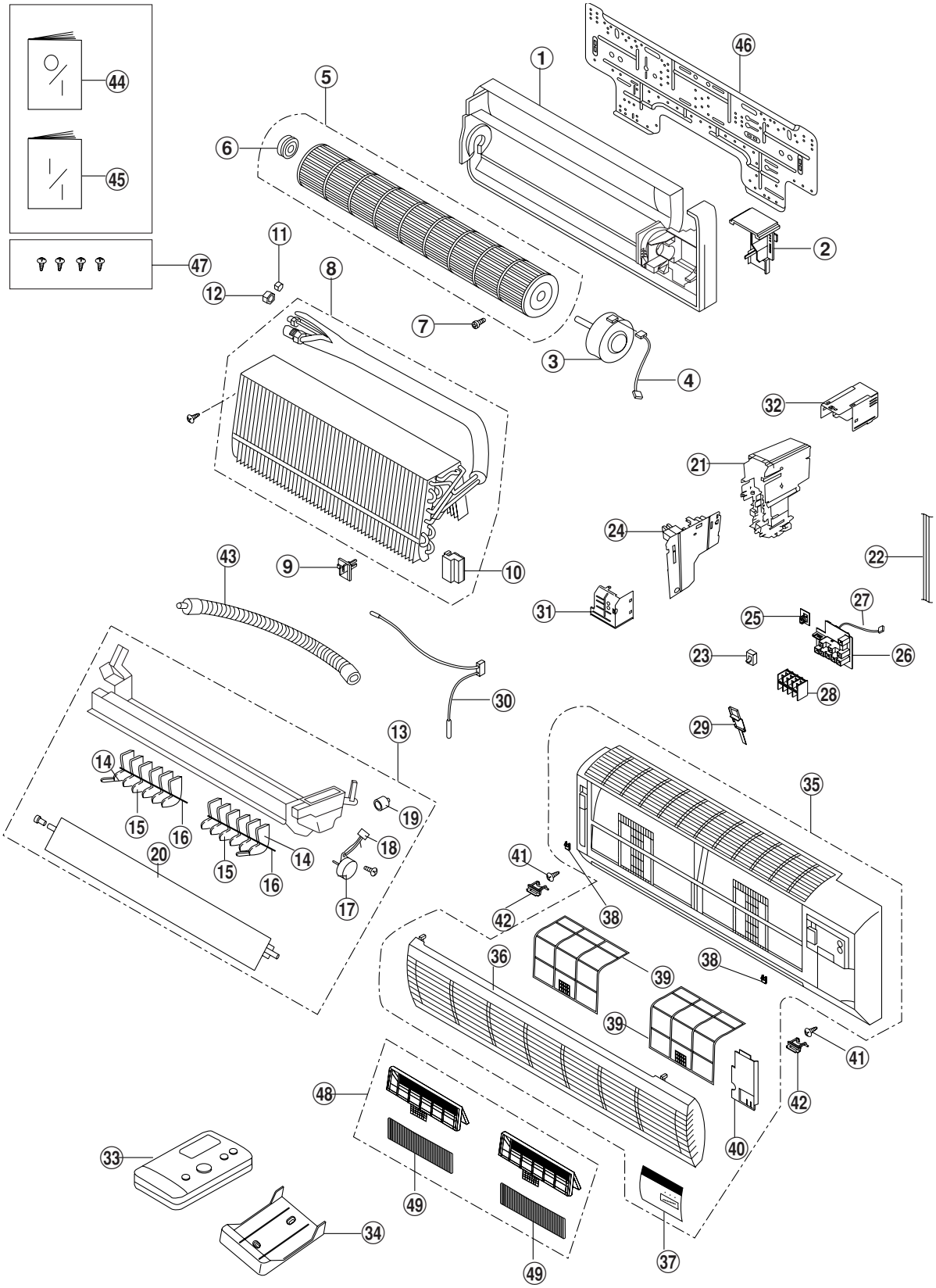
- **Piping Length Characteristic**



[Condition] Room temperature: 27/19°C
Outdoor temperature: 35/34°C
Cooling opeartion: At High fan

Exploded View

CS-C73KE / CS-C93KE / CS-C123KE



(Note) : The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

Replacement Parts List

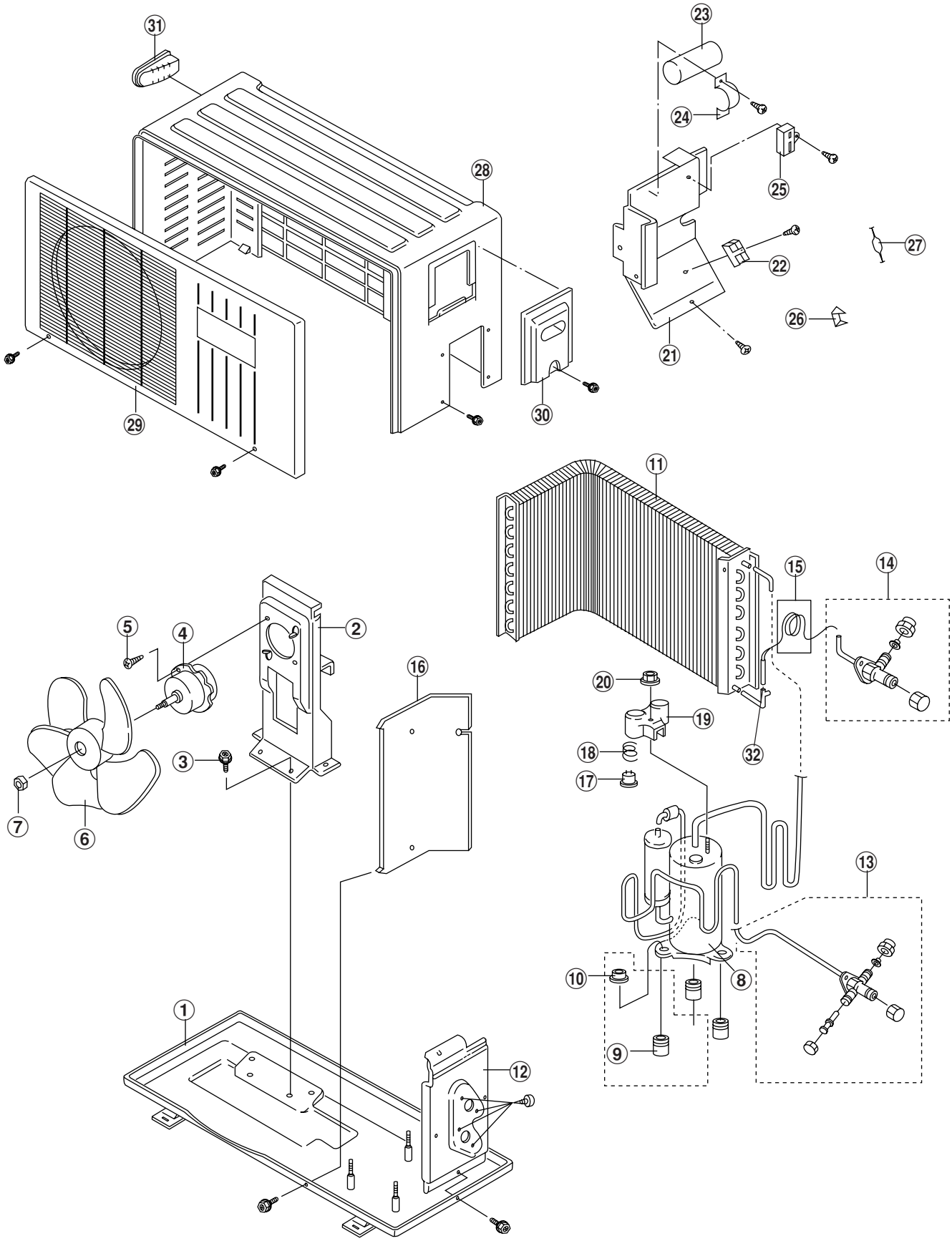
<Model: CS-C73KE / CS-C93KE / CS-C123KE>

NO.	DESCRIPTION & NAME	QTY	CS-C73KE	CS-C93KE	CS-C123KE
1	CHASSY COMPLETE	1	CWD50C338	←	←
2	PARTICULAR PIECE	1	CWD931019	←	←
3	FAN MOTOR	1	CWA92288	CWA92289	CWA92290
4	LEAD WIRE - FAN MOTOR	1	CWA67C2097	←	←
5	CROSS FLOW FAN	1	CWH02C060	←	←
6	BEARING	1	CWH64K007	←	←
7	SCREW - CROSS FLOW FAN	1	CWH4580304	←	←
8	EVAPORATOR & TUBE ASS'Y COMPLETE	1	CWB30C249	CWB30C278	CWB30C260
9	INTAKE AIR SENSOR HOLDER	1	CWH32142	←	←
10	ANTI VIBRATION BUSHING	1	–	CWH50211	←
11	FLARE NUT (1/4")	1	CWH6002140 (1/4")	←	←
12	FLARE NUT (1/2") OR (3/8")	1	CWT25005 (3/8")	←	CWT25007 (1/2")
13	DISCHARGE GRILLE COMPLETE	1	CWE20C610	←	CWE20C624
14	VERTICAL VANE WITH TAB	2	CWE24458	←	←
15	VERTICAL VANE	10	CWE24457	←	←
16	CONNECTING BAR	2	CWE26194	←	←
17	AIR SWING MOTOR	1	CWA98260	←	←
18	LEAD WIRE - AIR SWING MOTOR	1	CWA67C2106	←	←
19	CAP FOR DRAIN TRAY	1	CWH52C003	←	←
20	HORIZONTAL VANE	1	CWE24462	←	←
21	CONTROL BOARD	1	CWH10965	←	←
22	POWER SUPPLY CORD	1	CWA20C751	←	←
23	SLIDE SWITCH	1	CWA04088	←	←
24	ELECTRONIC CONTROLLER	1	CWA741351	←	←
25	RECEIVER	1	CWA74919	←	←
26	INDICATOR COMPLETE	1	CWA741376	←	←
27	LEAD WIRE - INDICATOR	1	CWA67C2105	←	←
28	TERMINAL BOARD	1	CWA28C577	←	CWA28C578
29	INDICATOR HOLDER	1	CWD931018	←	←
30	TEMPERATURE SENSOR	1	CWA50C608	←	←
31	CONTROL BOARD FRONT COVER	1	CWH13456	←	←
32	CONTROL BOARD TOP COVER	1	CWH13457	←	←
33	REMOTE CONTROL COMPLETE	1	CWA75C724	←	←
34	REMOTE CONTROL HOLDER	1	CWH36161	←	←
35	FRONT GRILLE COMPLETE	1	CWE11C978	←	←
36	INTAKE GRILLE COMPLETE	1	CWE22C333	←	←
37	DECORATION BASE COMPLETE	1	CWE35C023	←	←
38	TAB	2	CWD931020	←	←
39	AIR FILTER	2	CWD00240	←	←
40	GRILLE DOOR	1	CWE14236	←	←
41	SCREW FOR FRONT GRILLE	2	XTN4+16C	←	←
42	CAP FOR FRONT GRILLE	2	CWH52267	←	←
43	DRAIN HOSE	1	CWH5880580	←	←
44	OPERATING INSTRUCTIONS (ENG/SPA/GER/FRA/NED/ITA)	1	CWF561591	←	←
44a	OPERATING INSTRUCTIONS (POR/GRK)	1	CWF561591A	←	←
44b	OPERATING INSTRUCTIONS (RUSSIAN)	1	CWF561591B	←	←
45	INSTALLATION INSTRUCTIONS	1	CWF61668	←	CWF61684
46	INSTALLATION PLATE	1	CWH36157	←	←
47	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C144	←	←
48	AIR PURIFYING FILTER COMPLETE	1	CWD00C111	←	←
49	AIR PURIFYING FILTER	2	CWD00220	←	←

(Note) • All parts are supplied from MACC, Malaysia (Vendor Code: 086).
• ○ marked parts are recommended to be kept in stock.

Exploded View

CU-C73KE / CU-C93KE



(Note) : The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

Replacement Parts List

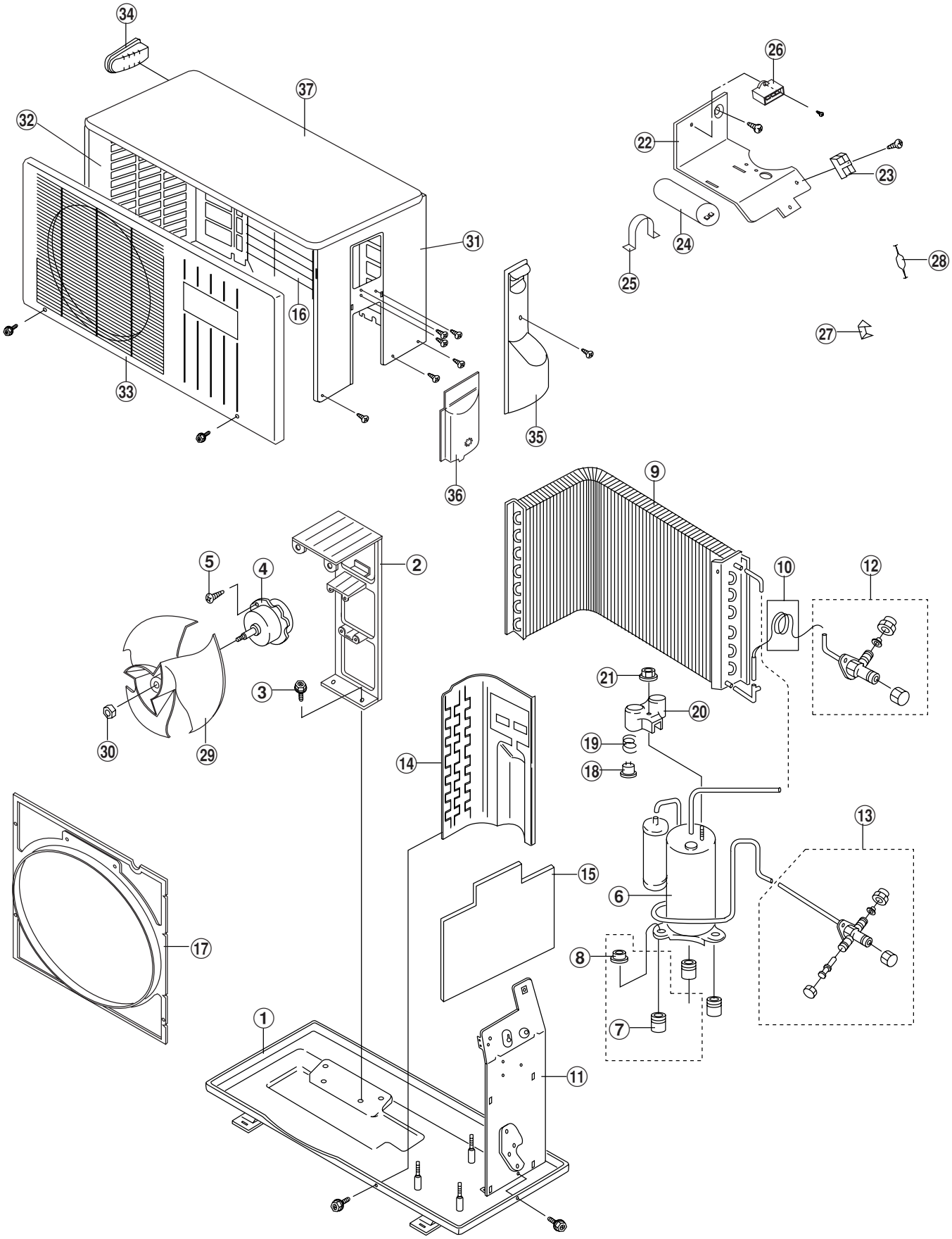
<Model: CU-C73KE / CU-C93KE

NO.	DESCRIPTION & NAME	Q'TY	CU-C73KE	CU-C93KE	REMARKS
1	CHASSY ASS'Y	1	CWD50K525B	←	
2	FAN MOTOR BRACKET	1	CWD54113	←	
3	SCREW – FAN MOTOR BRACKET	4	CWH4580399	←	
4	FAN MOTOR	1	CWA95238	←	○
5	SCREW – FAN MOTOR MOUNT	3	CWH55027	←	
6	PROPELLER FAN	1	CWH00K040	←	
7	NUT – PROPELLER FAN	1	CWH56032	←	
8	COMPRESSOR	1	2RS110D5CA04	2PS146D5BA04	○
9	ANTI – VIBRATION BUSHING	3	CWH50077	←	
10	NUT – COMPRESSOR MOUNT	3	CWH56000	←	
11	CONDENSER	1	CWB32C323	CWB32C119	
12	HOLDER COUPLING ASS'Y	1	CWH35K017A	←	
13	3-WAY VALVE	1	CWB01438	←	○
14	2-WAY VALVE	1	CWB02277	←	○
15	TUBE ASS'Y (STRAINER CAPILLARY)	1	CWT01C589	CWT01C590	
16	SOUND PROOF BOARD	1	CWH15266	←	
17	OVERLOAD PROTECTOR	1	CWA67C2069	CWA67C2070	○
18	HOLDER – O.L.P.	1	CWH7041200	←	
19	TERMINAL COVER	1	CWH17006	←	
20	NUT – TERMINAL COVER	1	CWH7080300	←	
21	CONTROL BOARD	1	CWH10881	←	
22	TERMINAL BOARD ASS'Y	1	CWA28K217	←	
23	CAPACITOR – COMPRESSOR	1	CWA31645 (20 μF, 370 V)	CWA31647 (30 μF, 370 V)	○
24	HOLDER CAPACITOR	1	CWH30057	←	○
25	CAPACITOR – FAN MOTOR	1	CWA31342 (1.2 μF, 400 V)	←	
26	FUSE HOLDER	1	XCSCW011	←	○
27	FUSE	1	XBA2C31TR0	←	○
28	CABINET ASS'Y	1	CWE00K330A	←	
29	CABINET FRONT PLATE	1	CWE06C117A	←	
30	CONTROL BOARD COVER	1	CWH13302	←	
31	HANDLE	1	CWE16037C	←	
32	STRAINER	1	CWB11025	←	

(Note) ● All parts are supplied from MACC, Malaysia (Vendor Code: 086).
● ○ marked parts are recommended to be kept in stock.

Exploded View

CU-C123KE



(Note) : The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

Replacement Parts List

<Model: CU-C123KE

NO.	DESCRIPTION & NAME	Q'TY	CU-C123KE	REMARKS
1	CHASSY ASS'Y	1	CWD50K658A	
2	FAN MOTOR BRACKET	1	CWD54254	
3	SCREW – FAN MOTOR BRACKET	6	CWH55413	
4	FAN MOTOR	1	CWA95378	○
5	SCREW – FAN MOTOR MOUNT	4	CWH55252	
6	COMPRESSOR	1	2KS224D5CA02	○
7	ANTI – VIBRATION BUSHING	3	CWH50055	
8	NUT – COMPRESSOR MOUNT	3	CWH4582065	
9	CONDENSER	1	CWB32C334	
10	TUBE ASS'Y (STRAINER CAPILLARY)	1	CWT01C647	
11	HOLDER COUPLING ASS'Y	1	CWH35K062	
12	2-WAY VALVE	1	CWB02514	○
13	3-WAY VALVE	1	CWB01480	○
14	SOUND PROOF BOARD	1	CWH15288	
15	SOUND PROOF MATERIAL	1	CWG30911	
16	WIRE NET	1	CWD04197A	
17	AIR GUIDER PROPELLER FAN	1	CWD31138	
18	OVERLOAD PROTECTOR	1	CWA67C2166	○
19	HOLDER – O.L.P.	1	CWH7041200	
20	TERMINAL COVER	1	CWH17006	
21	NUT – TERMINAL COVER	1	CWH7080300	
22	CONTROL BOARD	1	CWH10972	
23	TERMINAL BOARD ASS'Y	1	CWA28K217	
24	CAPACITOR – COMPRESSOR	1	CWA31647 (30 μF, 370 V)	○
25	HOLDER CAPACITOR	1	CWH30057	
26	CAPACITOR – FAN MOTOR	1	CWA31227 (1.5 μF, 400 V)	○
27	FUSE HOLDER	1	XCSCW011	
28	FUSE	1	XBA2C31TR0	○
29	PROPELLER FAN ASS'Y	1	CWH00K087	
30	NUT – PROPELLER FAN	1	CWH56053	
31	CABINET SIDE PLATE (RIGHT)	1	CWE04217A	
32	CABINET SIDE PLATE (LEFT)	1	CWE04220A	
33	CABINET FRONT PLATE	1	CWE06K104A	
34	HANDLE	1	CWE16037C	
35	CONTROL BOARD COVER	1	CWH13461	
36	PLATE FOR C.B. COVER	1	CWD91258	
37	CABINET TOP PLATE	1	CWE03111A	

(Note) • All parts are supplied from MACC, Malaysia (Vendor Code: 086).
• ○ marked parts are recommended to be kept in stock.

Electronic Parts List

<Model: CWA741351

SYMBOL	DESCRIPTION & NAME	PART NO.
C–FM	SH CAPACITOR	A31698
DB1	DIODE	A54CS1VB20E
FUSE	FUSE	XBA2C31TR0
IC4	INTEGRATED CIRCUIT	A52C040
IC5	INTEGRATED CIRCUIT	A52C094
RY–Hi, RY–M, RY–SHi	ELECTRO MAGNETIC RELAY	A00160
RY–PWR	ELECTRO MAGNETIC RELAY	A00106
SSR 1	TYRISTOR	A56W2DEH1–5
SW2, SW3	PUSH SWITCH	A01059
T1	TRANSFORMER	A40366
TEMP FUSE	FUSE	A16C204
ZNR1, ZNR2	DIODE	ERZVEAV511

(Note) ● All parts are supplied from MACC, Malaysia (Vendor Code: 086).

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CS-C73K/C93K/C123K CS-C73K/C93K/C123K

ELECTRONIC CIRCUIT DIAGRAM

- CS-C73KE / CU-C73KE
- CS-C93KE / CU-C93KE
- CS-C123KE / CU-C123KE

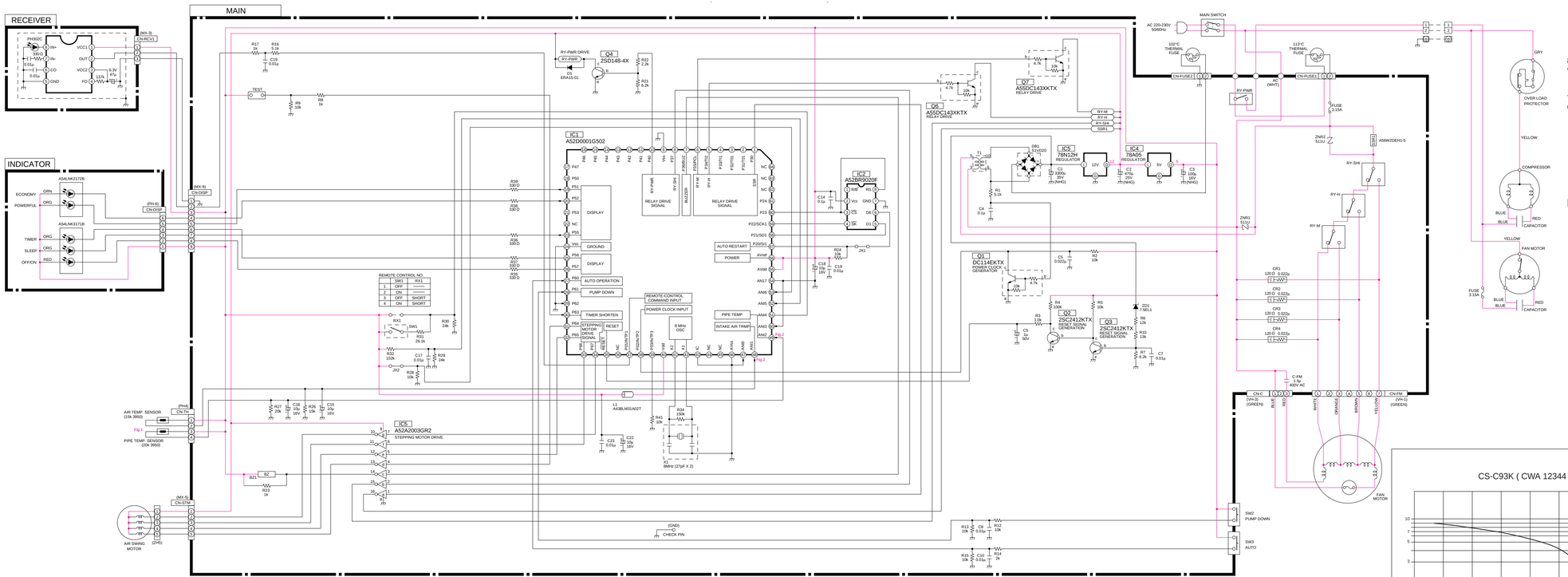


Fig. 1

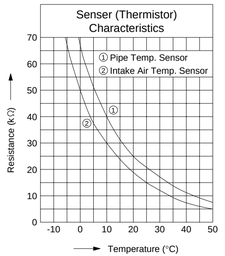


Fig. 2

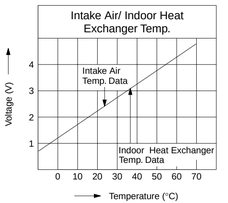
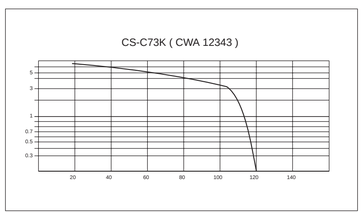
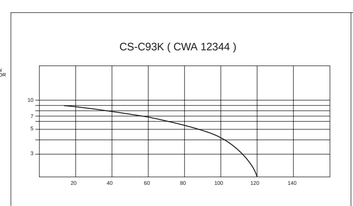
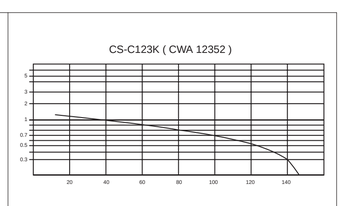


Fig. 3 OLP Characteristics (Compressor)







CS-C73K/C93K/C123K CS-C73K/C93K/C123K

How to use electronic circuit diagram

Before using the circuit diagram, read the following carefully.

* Voltage measurement
  Voltage has been measured with a digital tester when the indoor fan is set at high fan speed under the following conditions without setting the timer.
  Use them for servicing.
  Voltage indication is in Red at all operations.

	Intake air temperature	Temperature setting	Discharge air temperature	Pipe temperature
Cooling	27°C	16°C	17°C	15°C

* Indications for resistance
  a. K .... k M ... M
  W ... watt Not indicated 1/4W
  b. Type
  Not indicated ..... carbon resister Tolerance±5%
  ..... metal oxide resister Tolerance±1%

* Indications for capacitor
  a. Unit μ .... μF P .... pF
  b. Type Not indicated ... ceramic capacitor
  (S) ..... S series aluminium electrolytic capacitor
  (Z) ..... Z series aluminium electrolytic capacitor
  (SU) ..... SU series aluminium electrolytic capacitor
  (P) ..... P series polyester system
  (SXE) ..... SXE series aluminium electrolytic capacitor
  (SRA)..... SRA series aluminium electrolytic capacitor
  (KME)..... KME series aluminium electrolytic capacitor

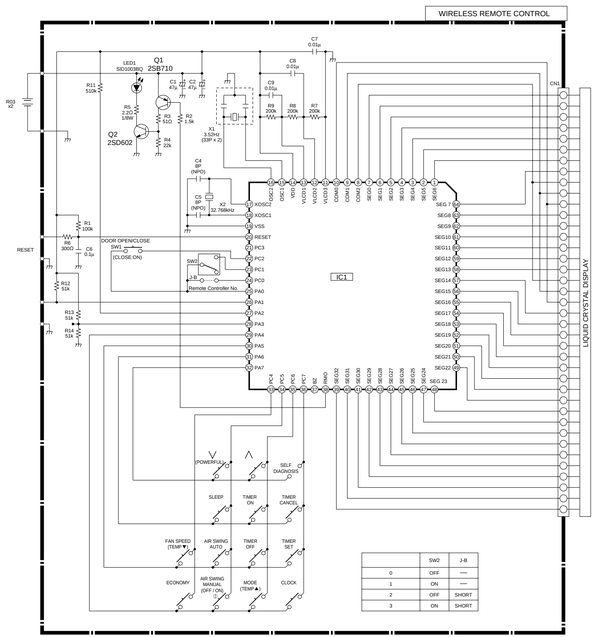
* Diode without indication MA165
※ Circuit Diagram is subject to change without notice for further development.

TIMER TABLE

Name		Time	Test mode (When test point Short-circuited)	Remarks
Sleep Mode Waiting		1 hr.	6 sec.	
Sleep Mode Operation		8 hrs.	48 sec.	
Real Timer		1 hr.	1 min.	
		10 min.	10 sec.	
		1 min.	1 sec.	
Time Delay Safety Control		2 min. 58 sec.	0 sec.	
Forced Operation		60 sec.	0 sec.	
Time Save Control		7 min.	42 sec.	
Anti-Freezing Control		4 min.	0 sec.	
Mode Jugdement		20 sec.	0 sec.	
Soft Dry	Off	6 min.	36 sec.	
	On	10 min.	60 sec.	SOFT DRY: 10 min. operation
Deodorizing Control	Cooling	40 sec	4 sec.	
		70 sec.	7 sec.	
		20 sec.	2 sec.	
	Soft Dry	180 sec.	18 sec.	
		40 sec.	4 sec.	
		360 sec.	36 sec.	
Comp. Reverse Rotation Detection		5 min.	30 sec.	Comp. ON 5 min. and above
		2 min.	0 sec.	
Comp./Fan motor Delay Timer		1.6 sec.	0 sec.	
SLo Timer		8 sec.	8 sec.	
Intake Air Anti-Freezing Prevention		16 min.	96 sec.	
POWERFUL MODE		15 min.	15 sec.	
Random FM Timer (ECONOMY Mode)		5 sec.	5 sec.	
Random Auto Restart Control		0 ~ 150 sec.	0 sec	

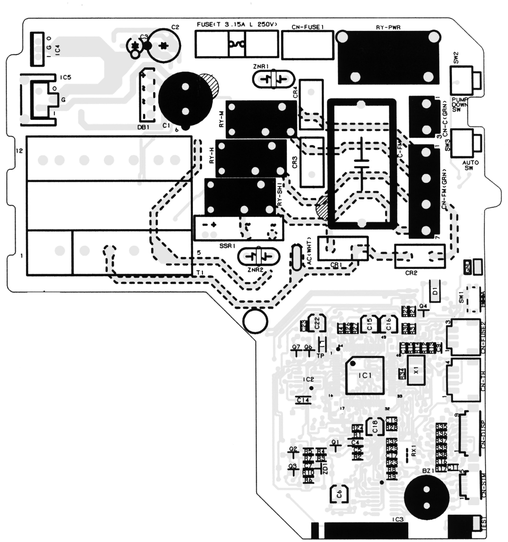
ELECTRONIC CIRCUIT DIAGRAM

● REMOTE CONTROL



PRINT PATTERN
INDOOR UNIT PRINTED CIRCUIT BOARD

TOP VIEW



PRINT PATTERN
INDOOR UNIT PRINTED CIRCUIT BOARD

BOTTOM VIEW